CURRICULUM VITAE

V. K. Cody Bumgardner, PhD

Associate Professor, Clinical Title Series
Department of Pathology & Laboratory Medicine
University of Kentucky College of Medicine
UK HealthCare

I. GENERAL INFORMATION

Office Address 800 Rose St

Lexington, KY 40536

Email cody@uky.edu
Telephone 859-323-7215

II. EDUCATION

Undergraduate

Morehead State University

Morehead, KY

05/1995-05/1996 Pre-Engineering

University of Kentucky

Lexington, KY

08/1996-05/1999 Philosophy

05/2003-05/2009 BS, Computer Engineering

Professional/Graduate

University of Kentucky

Lexington, KY

05/2010-05/2017 PhD in Computer Science

III. PROFESSIONAL EXPERIENCES

Rowan County Board of Education

Morehead, KY

05/1994-05/1996 Network Consultant, IT, part-time

Morehead State University

Morehead, KY

05/1995-12/1995 Consultant, IT, part-time

01/1996-08/1996 Physics Co-Op, Mathematics and Physics, part-time

Pomeroy Computer Resources

Lexington, KY

08/1996-12/1997 Systems Consultant, Systems Support, full-time

Communitronics Inc.

Lexington, KY

Senior Network Engineer/Security Analyst, Systems Engineering, full-time 01/1997-02/2000

Nuvox Communications

Lexington, KY

05/2000-09/2001 Senior Technical Manager, Solutions Consulting, full-time

Netsource

Lexington, KY

09/2001-06/2002 Director of Technical Services, Technical Services, full-time

University of Kentucky

Lexington, KY

Lead Developer, Center for Minimally Invasive Surgery, full-time 06/2002-11/2003 Lead Systems Programmer, UKIT, full-time 11/2003-01/2008 01/2008-07/2010 Director Enterprise Computing and Development, UKIT, full-time 07/2010-07/2016 Chief Technology Architect, UKAT, full-time 07/2016-07/2017 Director of Research Computing, ITS, full-time Assistant Director, Institute of Biomedical Informatics 07/2016-02/2019 08/2017-present Division Chief of Pathology Informatics, Pathology and Laboratory Medicine Assistant Professor, Computer Science, courtesy joint appointment 09/2017-06/2023

Director of Innovation, Institute of Biomedical Informatics 12/2020-09/2023

07/2023-present Associate Professor, Computer Science, courtesy joint appointment

10/2024-present Associate Professor, Division of Biomedical Informatics, Internal Medicine, courtesy

joint appointment

09/2023-present Director, Center for Applied Artificial Intelligence Associate Director, Institute of Biomedical Informatics 05/2024-present

State of Kentucky

Frankfort, KY

11/2021-present Senior Fellow Innovation, Council on Postsecondary Education, part-time

IV. HOSPITAL or CLINICAL APPOINTMENTS

University of Kentucky

Lexington, KY

Department of Pathology

Lexington, KY

Assistant Professor, Clinical Title Series, full-time 08/2017-06/2023 07/2023-present Associate Professor, Clinical Title Series, full-time

V. CONSULTING ACTIVITIES

State/Regional

Commonwealth Office of Technology

Frankfort, Kentucky

Cloud Migration Strategy and Procedures in Support of Executive Order 2012-880 03/2014-09/2014

VI. TEACHING ACTIVITIES

University of Kentucky Lexington, Kentucky Laboratory Information Systems, resident training 08/2018-12/2018	University Faculty	
08/2017-8/2018 08/2018-12/2018 08/2018-12/2018 08/2018-12/2018 08/2018-12/2018 08/2018-12/2018 08/2018-12/2018 08/2018-12/2019 08/2018-12/2019 08/2018-12/2019 08/2018-12/2019 01/2019-05/2019 01/2019-05/2019 01/2019-05/2019 08/2019-12/2019 08/2020-08/2020 08/2020-08/2020 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2021-12/2021 08/2022-04/2022 08/2022-04/2022 08/2022-04/2022 08/2022-04/2022 08/2022-04/2022 08/2022-04/2022 08/2022-04/2022 08/2022-08/2022 08/2022-08/2022 08/2022-08/2022 08/2022-08/2022 08/2023-08/2022 08/2023-08/2023		University of Kentucky
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08/2018-12/2018 CS612: Independent Work in Computer Science:	08/2017-8/2018	Laboratory Information Systems, resident training
Distribution, Security, and Auditability of Learning Systems Training CS612: Independent Work in Computer Science: Real-time Healthcare Analytics CS610: Masters Project (Cotter) O1/2019-05/2019 CS405G: Introduction to Databases 08/2019-12/2019 CS405G: Introduction to Databases 08/2019-12/2019 CS535: Asynchronous Web Applications 08/2019-12/2019 CS505: Intermediate Topics in Database Systems O6/2020-08/2020 CS505: Intermediate Topics in Database Systems O6/2020-08/2020 CS612: Al-assisted verification of biometric data collection O1/2021-05/2021 CS505: Intermediate Topics in Database Systems O6/2021-05/2021 CS505: Intermediate Topics in Database Systems O1/2021-05/2021 CS505: Intermediate Topics in Database Systems O1/2021-08/2021 CS612: Distributed Asynchronous Data Collection, Processing, and Monitoring 09/2021-09/2021 BMI633: Introduction to Bioinformatics: Pathology Informatics 08/2021-12/2021 CS612: Survey of LoRaWAN Applications O1/2022-05/2022 CS612: Survey of LoRaWAN Applications O1/2022-05/2022 CS612: Blockchain Applications in Secure Healthcare Communications 08/2022-12/2022 CS612: Timeseries Forecasting of eICU data O6/2022-08/2022 CS612: Survey of Time Series Classification Techniques O1/2023-05/2023 CS395: Oscilate Record Keeping with Blockchain O1/2023-05/2023 CS395: Survey of Time Series Classification Techniques O1/2023-05/2023 CS395: Active Storage Systems 01/2023-05/2023 CS612: Diffusion Models in Medical Imaging O5/2024-08/2024 CS612: Leveraging Large Language Models in Graph Analysis University of Cincinnati Cincinnati, Ohio HI 7090: Master of Health Informatics practicum preceptor Harvard Medical	08/2018-present	Pathology Informatics, resident training
08/2018-12/2018 CS612: Independent Work in Computer Science:	08/2018-12/2018	CS612: Independent Work in Computer Science:
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08/2023-12/2023 05/2024-08/2024 CS612: Diffusion Models in Medical Imaging CS612: Leveraging Large Language Models in Graph Analysis University of Cincinnati Cincinnati, Ohio HI 7090: Master of Health Informatics practicum preceptor Harvard Medical	05/2023-08/2023	· · · · · · · · · · · · · · · · · · ·
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	06/2020-08/2020	,
		Harvard Medical
	02/2023-08/2023	

VII. ADVISING ACTIVITIES

Student Advising	
	University of Kentucky
	Lexington, Kentucky
01/2018-09/2019	Advisor, Daniel Cotter, Masters, Computer Science
05/2018-05/2021	Advisor, Nima Seyedtalebi, PhD, Computer Science
08/2020-12/2020	Preceptor, Dylan Gains,
	Vanderbilt visiting student Computer Science
06/2022-08/2020	Wardah Saeed, MD, MS, University of Cincinnati Health Informatics
01/2021-05/2022	Ryan Lindsey, Masters, Computer Science
03/2021-07/2022	Shiraz Amin, Masters, Computer Science
05/2021-05/2023	Samuel Armstrong, Masters, Computer Science
01/2022-03/2023	Jacob Sabota, Masters RA, Data Science
01/2022-05/2023	Aaron Mullen, Undergraduate Intern, Computer Science
01/2022-05/2023	Dillion Tate, Masters, Computer Science
01/2022-05/2023	Preceptor, Student
	Dunbar High School – Math Science Technology Center
05/2022-05/2023	Travis Nilest, AIM Undergraduate Intern, Computer Science
05/2022-08/2022	Samuela Musasa, AIM Undergraduate Intern, Bio-Engineering
06/2022-05/2023	William Hands, AIM Undergraduate Intern, Computer Science
07/2022-present	Mahmut Gokmen, PhD RA, Computer Science
08/2023-present	Samuel Armstrong, PhD, Computer Science
05/2023-08/2023	Sam Quintero, AIM Undergraduate Intern, Mechanical Engineering
05/2023-05/2024	Fiaz Shah, AIM Undergraduate Intern, Bio-medical Engineering
06/2023-12/2023	Preceptor, Student A
	Lafayette High School – Pre-Engineering
08/2023-12/2023	Preceptor, Student B
	Dunbar High School – Pre-Engineering
08/2023-12/2023	Preceptor, Student C
	Dunbar High School – Pre-Engineering
01/2024-01/2025	Preceptor, Student D
	Lafayette High School – Pre-Engineering
01/2024 -01/2025	Preceptor, Student E
	Dunbar High School – Pre-Engineering
01/2024 -01/2025	Preceptor, Student F
	Dunbar High School – Pre-Engineering
05/2024 -08/2024	Preceptor, Student G
	Lexington Catholic High School
07/2024-present	Nathan Russel, PhD, Computer Science

VIII. ADMINISTRATIVE ACTIVITIES & UNIVERSITY SERVICE

State

State of Kentucky

Education & Research

12/2020-present Member, Council of Postsecondary Education Technical Advisory Committee

University

University of Kentucky

Lexington, Kentucky

Education & Research

08/2008-08/2012 Member, High Performance Computing Technical Advisory Committee Chair, High Performance Computing Technical Advisory Committee

08/2019-present UK Healthcare Research Data Governance

Community Outreach

08/2017-present Community lead, US Ignite, Lexington as a Smart City

College

University of Kentucky

Lexington, Kentucky

Administration

08/2011-08/2013	Chair, UKAT Enterprise Technology Architecture Committee
08/2013-07/2015	Member, UKAT Enterprise Technology Architecture Committee
01/2018-05/2018	Member, UK BEST – Patient Blood Management Initiative Team

Education & Research

08/2014-08/2017	Member, Arts and Sciences Research/Scholarship Committee
07/2016-02/2019	Institute of Biomedical Informatics Steering Committee
08/2019-present	Institute of Biomedical Informatics Leadership Committee
05/2023-04/2024	Project GATeWAY Technology Working Group

IX. SPECIAL ASSIGNMENTS

An over 20-year technology career with broad experience from transistors to computational theory. I have been fortunate to study the underlying science of computing, while applying its applications.

Skills:

- 1. <u>Translational leadership</u>: I have had the opportunity to either establish or reimagine numerous technology leadership positions. As Director of Enterprise Systems, I lead efforts to modernize infrastructure and realign the organization to better take advantage of cloud computing services. As Chief Technology Architect, I oversaw 150 technology modernization projects resulting in 25 million dollars of direct costs savings and quality improvements. As Director of Research Computing, I lead the transition from traditional leased computational clusters to in-house computing development, established a campus research network, and significantly improved local and state-wide research infrastructure. As the inaugural Division Chief for Pathology Informatics I lead efforts to recruit faculty and staff, developed computational efforts to launch clinical services, established a research data trust, and continue to develop clinical and research services. As the inaugural Institute for Biomedical Informatics Innovation Core director, lead staff recruitment efforts, established a broad project portfolio, and continue to apply advanced technology to medical sciences.
- 2. <u>Professional Development</u>: I have been fortunate to receive mentorship from the earliest stages of my career to the present day. From a student supervisor of the inaugural Kentucky Student Technology and Leadership Program (1995), to the CIO Pathways Leadership Development Program (2011), and UKIT Leadership Development Programs (2010 and 2011) I have actively engaged in the leadership development

- of technology professionals. As a faculty in both medicine and engineering I have the pleasure of engaging with persons ranging from high school students, undergraduates, graduates, medical residents, and other faculty and staff in our personal and professional development.
- 3. <u>Applications</u>: Extensive experience in the design and deployment of highly redundant distributed applications from embedded systems to global public cloud services. Deep understanding of software development, testing, deployment, and monitoring on theoretic and practical levels.
- 4. <u>Hardware</u>: Experience ranging from hardware description (HDL and VHDL) through digital/analog circuits to analog power systems. I have extensive applied hardware experience ranging from embedded systems to high-performance and high-throughput computing.
- 5. <u>Network</u>: Extensive experience in network design on the enterprise and carrier level, wired and wireless, traditional, and software-defined systems. I have supported and implemented many network devices and technologies from most major vendors.
- 6. <u>Data Science:</u> I have conducted numerous informatic studies including traditional statistical analysis, machine learning, and deep learning, including the latest large language (LLM) and multi-modal architectures.

X. HONORS & AWARDS

Memberships

04/2016	Outstanding PhD Student in Computer Science, University of Kentucky
04/2016	Honorable Order of Kentucky Colonels, Kentucky Colonel
08/2022	2022 College of Medicine (Wethington) Research Award
08/2023	2023 College of Medicine (Wethington) Research Award

XI. PROFESSIONAL ACTIVITIES, PUBLIC SERVICE & PROFESSIONAL DEVELOPMENT

The state of the s
Institute of Electrical and Electronics Engineers (IEEE)
Association for Computing Machinery (ACM)
Digital Pathology Association (DPA)
Healthcare Information and Management Systems Society (HIMSS)
Association for Pathology Informatics (API)
American Medical Informatics Association (AMIA)
Kentucky OpenStack Foundation Day
Conference Chair
National Science Foundation (NSF)
Panelist
Kentucky OpenStack Foundation Day
Conference Chair
2017 International Conference on Cognitive Infocommunications, Systems and
Networks (ICCISN)
Technical Program Committee: Reviewer

04/2017-07/2017	2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI) Technical Program Committee: Reviewer
08/2017-10/2017	2017 International Conference on Internet of Things, Embedded Systems and Communications (HNTEC) Technical Program Committee: Reviewer
02/2018-02/2018	DoD National Defense Science and Engineering Graduate Fellowship Panelist
02/2018-4/2018	2018 World Symposium on Computer Applications & Research (WSCAR) Technical Program Committee: Reviewer
04/2018-04/2018	National Science Foundation (NSF) Panelist
05/2018-10/2018	2018 International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE) Technical Program Committee: Reviewer
05/2018-11/2018	2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI) Technical Program Committee: Reviewer
09/2018-12/2018	2019 International Conference on Digital Image and Signal Processing (DISP) Technical Program Committee: Reviewer
09/2018-02/2019	2019 International Conference on Control Automation and Information Sciences (ICCAIS) Technical Program Committee: Reviewer
02/2019-02/2019	DoD National Defense Science and Engineering Graduate Fellowship Panelist
02/2019-02/2019	National Science Foundation (NSF) Panelist
03/2019-12/2019	2019 International Conference on Advances in Computing, Communications and Informatics (ICACCI) Technical Program Committee: Reviewer
05/2019-04/2020	2020 International Conference on Smart Education and Applied Social Sciences (SEAS'20) Technical Program Committee: Reviewer
07/2019-11/2019	2019 International Conference and Workshop on Telecommunication Computing Electronics and Control (ICW-TELKOMNIKA) Technical Program Committee: Reviewer

08/2019-12/2019	2019 International Conference on Network, Communication, and Computing (ICNCC) Technical Program Committee: Reviewer
09/2019-9/2020	Bulletin of Electrical Engineering and Informatics (BEEI) Associate Editor
10/2019-9/2020	iCancer 2020 4 th International Cancer Conference and Expo Organizing Committee
12/2019-01/2020	DoD National Defense Science and Engineering Graduate Fellowship Panelist
11/2019-04/2020	2020 International Conference on Wireless Communication and Big Data (WCBD) Technical Program Committee: Reviewer
11/2019-04/2020	2020 International Conference on Computing, Networks, and Internet of Things (CNIOT) Technical Program Committee: Reviewer
01/2020-07/2020	2020 Electrical Engineering, Computer Science, Informatics (EECSI) Conference Technical Program Committee: Reviewer
01/2020-07/2020	2020 Ahmad Dahlan International Conference Series on Engineering, Science and Information Technology (ADICS-ESIT) Technical Program Committee: Reviewer
12/2019-07/2020	2020 1st Workshop on Network Traffic Analytics using Machine Learning (NETAML) Technical Program Committee: Reviewer
05/2020-05/2021	2021 15 th IEEE International Conference on Networking, Architecture, and Storage (IEEE NAS) Program Committee
09/2020-04/2021	3 rd International Conference on Advances in Computer Technology, Science and Communications (CTISC 2021) Technical Program Committee
01/2021-01/2021	National Science Foundation (NSF) Panelist
11/2020-01/2022	Bulletin of Electrical Engineering and Informatics (BEEI) Associate Editor
12/2020-03/2021	2021 International Conference on Computer Applications and Information Security (ICCAIS) Technical Program Committee: Reviewer
02/2022-02/2022	National Science Foundation (NSF) Panelist

07/2021-07/2021	Kentucky Postsecondary Education IT Capital Project Committee Reviewer
12/2021-03/2022	2022 International Conference on Computer Applications and Information Security (ICCAIS) Technical Program Committee: Reviewer
11/2021-03/2022	2022 International Conference and Workshop on Telecommunication Computing Electronics and Control (ICW-TELKOMNIKA) Technical Program Committee: Reviewer
02/2022- 07/2022	University of Kentucky Center for Clinical and Translational Sciences CCTS Pilot Review Committee
07/2022- 10/2022	6 th Commonwealth Computational Summit Biomedical Informatics Session Chair
07/2022-07/2022	Kentucky Postsecondary Education IT Capital Project Committee Reviewer
07/2022- 10/2022	2022 AI in Medicine Workshop Program Chair
01/2023-03/2023	National Institutes of Health (NIH) Panelist
07/2023-07/2023	Kentucky Postsecondary Education IT Capital Project Committee Reviewer
02/2024-02/2024	National Science Foundation (NSF) Panelist
02/2024-02/2024	National Institutes of Health (NIH) Panelist
03/2024- 03/2024	2024 Spring AI in Medicine Workshop Program Chair
04/2024- 04/2024	2024 Annual CCTS Spring Conference Reviewer
10/2024- 10/2024	GigaScience Reviewer
09/2024- 09/2024	CAAI Fall Workshop on LLMS Program Chair
10/2024- 10/2024	Addiction: Society for the Study of Addiction Reviewer

	National Science Foundation (NSF)
12/2024-12/2024	Panelist: Program A
	National Science Foundation (NSF)
12/2024-12/2024	Panelist: Program B
Journal Peer-Revie	wing
10/2018-12/2018	Journal of Network and Computer Applications / Elsevier Science
07/2019-08/2019	Transactions on Computational Social Systems / IEEE
08/2019-08/2019	Internet of Things Journal / IEEE
12/2019-01/2020	Journal of Networking Letters / IEEE
01/2020-3/2023	International Journal of Artificial Intelligence (IJ-AI)
05/2019-07/2020	Journal of Networking Letters / IEEE
12/2020-02/2022	International Journal of Informatics and Communications Technology (IJ-ICT)
09/2022-10/2022	Transactions on Computational Social Systems / IEEE
05/2023-07/2024	Journal of Networking Letters / IEEE
09/2023-09/2023	Pacific Symposium on Biocomputing (PSB) 2024
01/2024-01/2024	International Conference on Information and Computer Technologies (ICICT) 2024

Media Contributions

02/2024-02/2024

04/2023-05/2024

06/2024-08/2024

01/2025-02/2025

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01/2012	SC11 Commoditization of Computational Systems, Video, Seattle, WA, SuperComputing (SC) 2011 Staff
06/2013	Storage Switzerland, LLC Growth of Unstructured Data, Video, San Jose, CA, Crump, George
06/2013	InfoQ OpenStack in Action Author Interview, Web, Sergio De Simone

International Conference on Learning Representations (ICLR) 2024

Journal of Networking Letters / IEEE

GigaScience Oxford Academic Journal

Journal of Networking Letters / IEEE

12/2017	KyForward Lexington named newest member of the US Ignite's Smart Gigabit Communities Program, Web, Staff
10/2018	IQVIA Artificial Intelligence in the IVD laboratory, Web, Monique Menezes
06/2019	IQVIA Automation Applications in the IVD laboratory, Web, Sharon Rosenblum TechTarget
03/2020	Discover key OpenStack deployment methods for networks, Web, Michaela Goss
03/2020	TechTarget Business culture is key in OpenStack network requirements, Web, Michaela Goss
05/2020	TechTarget Explore real-world edge computing examples for network teams, Web, Michaela Goss
05/2020	Radio Free HPC Edge computing interview, Podcast episode 275, Radio Free HPC Team
05/2020	TechTarget Edge computing book introduces edge laws and techniques, Web, Michaela Goss
06/2020	Cloudbusting Edge Computing 101, Podcast episode 77, Cloudbusting Team
12/2020	Technoculture Edge Computing, Podcast, Federica Bressan

XII. SPEAKING ENGAGEMENTS

Local	
	University of Kentucky Department of Computer Science
	Lexington, Kentucky
09/2011	Keeping Current Seminar: "Current Topics in Cloud Computing"
10/2012	Keeping Current Seminar: "Cloud Platform as a Service"
	Intel / Dell
	Lexington, Kentucky
10/2011	Converged Computing Conference: "Enabling Scientific Discovery"
	University of Kentucky Center Department of Pathology and Laboratory Medicine
	Lexington, Kentucky
05/2018	Grand Rounds: "Informatics in Digital Pathology"
	University of Kentucky Center for Clinical and Translational Sciences (CCTS)
	Lexington, Kentucky
03/2021	Biomedical Informatics Lunch and Learn: "A path toward operational AI in medicine"

11/2021	University of Kentucky Department of Internal Medicine Lexington, Kentucky Grand Rounds: "Developing AI in Medicine"
08/2023	University of Kentucky Markey Cancer Center Lexington, Kentucky Markey Summer Retreat: "AI in Pathology Informatics"
10/2023	University of Kentucky Center for Clinical and Translational Sciences (CCTS) Lexington, Kentucky Biomedical Informatics: "AI tools in Clinical Decision Support"
12/2023	University of Kentucky Center for Clinical and Translational Sciences (CCTS) Lexington, Kentucky Harnessing AI in medical domains through multi-model models and AI-assisted data query and retrieval
02/2024	University of Kentucky VPR Research Advisory Group (RAG) Lexington, Kentucky AI and Big Data
02/2024	University of Kentucky VPR Lunch & Learn Workshop Lexington, Kentucky Applied AI: Advancing research from spreadsheets to generative virtual assistants
03/2024	University of Kentucky 1st CAAI Workshop Lexington, Kentucky Self-service Large Language Models (LLMs)
03/2024	University of Kentucky (Paducah Campus): College of Engineering Paducah, Kentucky Applied AI in Engineering
04/2024	University of Kentucky College of Health Sciences Lexington, Kentucky Navigating AI in Healthcare: Balancing Promise and Bias
11/2024	University of Kentucky Center for Appalachian Research in Environmental Sciences Lexington, Kentucky Environmental Health Sciences Seminar Series: "Unlocking the Power of Sensor Networks and AI"
11/2024	University of Kentucky Center Department of Pathology and Laboratory Medicine Lexington, Kentucky Grand Rounds: "AI in Pathology"
01/2025	University of Kentucky College of Medicine Lexington, Kentucky Research Skill Enhancement and Employee Development (ReSEED): "AI in Medicine"

State/Regional

Educause Tampa Bay, Florida 05/2012 Southeast Regional Conference: "Transformation of Student Spaces" **Commonwealth of Kentucky** Lexington, Kentucky Kentucky CIO Meeting: "Building a Regional Resource Cloud" 05/2012 **University of Kentucky Research Computing** Lexington, Kentucky 07/2014 OpenStack Day: "OpenStack Components" Arista Columbus, Ohio 10/2016 Networks Cloud Builders: "UK Research Computing" 1st Annual Commonwealth Computational Summit 11/2017 Session Chair: Future Technologies Healthcare Information and Management Systems Society (HIMSS) Kentucky Bluegrass Chapter - Clinical Informatics Symposium Highland Heights, KY 09/2018 Panel: "Preparing Infrastructure for Digital Pathology" 3rd Commonwealth Computational Summit Lexington, Kentucky 10/2019 Panel: Medical Research 4th Commonwealth Computational Summit – OpenStack Session Lexington, Kentucky 10/2020 OpenStack Day: "Edge Computing and OpenStack" 5th Commonwealth Computational Summit Lexington, Kentucky Panel Moderator: Data Science Research and Education 04/2022 Southeastern Conference (SEC) AI Symposium Panel Moderator: AI in Health and Medicine 04/2022 **Artificial Intelligence in Medicine (AIM) Summit 2022** Lexington, Kentucky AI to Z in Medicine 04/2022 The 12th Annual Appalachian Translational Network (ATRN) Summit Lexington, Kentucky 11/2022 Virtual assistant system for telemedicine and remote monitoring

2023 Healthcare Workforce Collaboratory

Lexington, Kentucky

10/2023 Augmenting Healthcare and Workforce with Artificial Intelligence

Calvert City Community Advisory Team

Calvery City, Kentucky

03/2024 The Current State of Applied AI

Sprocket

Paducah, Kentucky

03/2024 Driving Innovation through AI

University of Kentucky Center for Clinical and Translational Sciences (CCTS) 19th

Annual Spring Conference

Lexington, Kentucky

04/2024 Biomedical Informatics: "Computational Agents in Research"

Legislative Special Committee Artificial Intelligence Task Force

Frankfort, Kentucky AI in Healthcare

2024 American College of Physicians Kentucky Chapter Annual Scientific Meeting

Lexington, Kentucky

09/2024 AI in Internal Medicine

National/International

09/2024

Dell Computer

Orlando, Florida

06/2011 Dell Storage Forum: "Higher Education Computing"

American Society of Agricultural and Biological Engineers

Louisville, Kentucky

08/2011 International Meeting: "Growing Research Through Hybrid Cloud"

International Conference for High Performance Computing

Seattle, Washington

10/2011 SC11: "Research and Hybrid Cloud"

Dell Computer

Santa Cruz, California

04/2013 Dell XL: "Cloud Computing and Virtualization in Super Computing"

Dell Computer

San Jose, California

06/2013 Dell Enterprise Forum: "Optimization of Clouds for the Enterprise"

Dell Computer

Nashville, Tennessee

08/2014 Global Summit: "Future of Information Technology"

	International Workshop on Computer and Networking Experimental Research Using Testbeds Columbus, Ohio
06/2015	Panel: "Software Defined Networks (SDN) and Experiment-based Research"
09/2015	Global LambdaGrid Workshop and GLIF Conference Prague, Czech Republic IRNC Meeeting: "Software-Defined and Privacy Preserving Network Measurement Instrument and Services for Understanding Data-Driven Science Discovery"
12/2017	Windstream Inc. Little Rock, AR Windstream Healthcare Team Meeting: "Topics in Pathology Informatics"
03/2018	Healthcare Information and Management Systems Society (HIMSS) Conference Las Vegas, NV Panel: "Preparing Your HIT Infrastructure for Digital Pathology and Beyond" 70th American Association for Clinical Chemistry (AACC) Scientific Meeting &
07/2018	Clinical Lab Expo Chicago, IL Scientific Session: "Beyond the Personal Computer: Moving Analysis to Computational Clusters"
02/2020 02/2021	University of San Diego Leadership Development Program San Diego, CA Speaker Session: "Technical leadership and innovation 2020" Speaker Session: "Technical leadership and innovation 2021"
10/2020	Edge Computing World Virtual Application Management Summit: "Workload Management in Pathology"
10/2020	Edge Computing World Virtual Edge Executive Conference: Application Management Panel Discussion
11/2020	Sixth Computational Approaches for Cancer Workshop (CAFCW20) Virtual Panel #3: Translating Cancer Research Advances in Artificial Intelligence into Clinical Practice
11/2020	T-Mobile Virtual T-Mobile US Office of the CTO: "Pathology Informatics"
04/2021	Protecting Data and AI in Healthcare Summit Virtual Panel on AI and Data

Secure	R	Private	· Cloud	Summit

Virtual

07/2021 Panel on Confidential Cloud

MD.ai

Virtual

07/2022 Guest Speaker: "AI Platform Development in Pathology"

CTSA 2022 Spring Informatics Meeting

Chicago, IL

07/2022 Thematic Lightning Talks: "Self-service Platform for Pathology Imaging"

NCSL Legislative Summit 2024

Louisville, Ky

08/2024 Harnessing AI for Better Health and Human Services

XIII. RESEARCH & INTELLECTUAL CONTRIBUTIONS

A. PUBLICATIONS

Peer-Reviewed Original Research in Professional, Scientific or Educational Journals

- 1. Gandsas, A, McIntire K, Montgomery K, **Bumgardner V**, and Rice, L. "The personal digital assistant (PDA) as a tool for telementoring endoscopic procedures." Medicine Meets Virtual Reality 12: Building a Better You: The Next Tools for Medical Education, Diagnosis, and Care 98 (2004): 99.
- 2. Neelakantan S., Mueller T, Lee B, Finnell P, **Bumgardner V. K.C.**, and D. Carey. 2011. Web 2.0 spatial data browser for visualizing land-use assessment information from soil surveys. J. of Soil and Water Conservation and Management. 66:37A-39A
- 3. Mueller, T., Neelakantan, S., Rienzi, E., Mijatovic, B., Castrignano, A., Pike, A., **Bumgardner, V.K.C.** 2012. Cloud Computing, Web-Based GIS, Terrain Analysis, Data Fusion, and Multivariate Statistics for Precision Conservation in the 21st Century.
- 4. **Bumgardner**, V.K.C, and Victor W. Marek. "Scalable hybrid stream and Hadoop network analysis system." Proceedings of the 5th ACM/SPEC international conference on Performance engineering. ACM, 2014.
- 5. **Bumgardner**, V. K. Cody, Victor W. Marek, and Caylin D. Hickey. "Cresco: A distributed agent-based edge computing framework." Network and Service Management (CNSM), 2016 12th International Conference on. IEEE, 2016.
- 6. **Bumgardner**, V. K. Cody, et al. "Constellation: A secure self-optimizing framework for genomic processing." e-Health Networking, Applications and Services (Healthcom), 2016 IEEE 18th International Conference on. IEEE, 2016.
- 7. **Bumgardner**, V. K. Cody, Victor W. Marek, and Ray L. Hyatt. "Collating time-series resource data for system-wide job profiling." Network Operations and Management Symposium (NOMS), 2016 IEEE/IFIP. IEEE, 2016.

- 8. **Bumgardner**, V.K.C, et al. "An Edge-Focused Model for Distributed Streaming Data Applications", International Workshop on Pervasive Flow of Things (PerFoT'18). IEEE, 2018.
- 9. **Bumgardner**, V.K.C, et al. "Edge-enabled Distributed Network Measurement", Second International Workshop on Smart Edge Computing and Networking (SmartEdge'18). IEEE, 2018.
- 10. X. Wu, C. Xu, Y. Luo, C. Bumgardner, G. Ghinita and M. McGarry, "AMIS: Programmable Privacy-Preserving Network Measurement for Analysis and Troubleshooting," 2019 IFIP/IEEE Symposium on Integrated Network and Service Management (IM), Arlington, VA, USA, 2019, pp. 733-734.
- 11. **Bumgardner**, V.K.C, Hickey, C, Seyedtalebi, N. "Agent Communications in Edge Computing", Second International Conference on Industrial Internet (ICII). IEEE, 2019.
- 12. Alcantara, C., Dasari, V., **Bumgardner**, C., & McGarry, M. P. (2020, April). Evaluating features for network application classification. In *Disruptive Technologies in Information Sciences IV* (Vol. 11419, p. 114190Q). International Society for Optics and Photonics.
- 13. Di, J., Hickey, C., Bumgardner, C. and Qasem, S. "Cell-Specific Parameters Differentiate Benign from Malignant Soft Tissue Tumors." LABORATORY INVESTIGATION. Vol. 102. No. SUPPL 1. CAMPUS, 4 CRINAN ST, LONDON, N1 9XW, ENGLAND: SPRINGER NATURE, 2022.
- 14. Levy BE, Castle JT, Virodov A, Wilt WS, **Bumgardner C**, Brim T, McAtee E, Schellenberg M, Inaba K, Warriner ZD. Artificial intelligence evaluation of focused assessment with sonography in trauma. J Trauma Acute Care Surg. 2023 Nov 1;95(5):706-712. doi: 10.1097/TA.000000000000000001. Epub 2023 May 11. PMID: 37165477.
- 15. **Bumgardner** C, Armstrong S, Virodov A, Hickey C. Automated Curation and AI Workflow Management System for Digital Pathology. AMIA Annual Symposium Proceedings. March 2023
- 16. M Jarrells, S Armstrong, C Hickey, C Bumgardner, M Yu, B-198 Web-based Application of an Automated Quality Assurance Monitoring System for a Pain Management Panel by Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS), Clinical Chemistry, Volume 69, Issue Supplement_1, October 2023, hvad097.527, https://doi.org/10.1093/clinchem/hvad097.527
- 17. Di J, Hickey C, **Bumgardner C**, Yousif M, Zapata M, Bocklage T, Balzer B, Bui MM, Gardner JM, Pantanowitz L, Qasem SA. Utility of artificial intelligence in a binary classification of soft tissue tumors. J Pathol Inform. 2024 Feb 15;15:100368. doi: 10.1016/j.jpi.2024.100368. PMID: 38496781; PMCID: PMC10940995.
- 18. Brasher M, Virodov A, Raffay TM, Bada HS, Cunningham MD, **Bumgardner C**, Abu Jawdeh EG. Predicting Extubation Readiness in Preterm Infants Utilizing Machine Learning: A Diagnostic Utility Study. J Pediatr. 2024 Mar 30:114043. doi: 10.1016/j.jpeds.2024.114043. Epub ahead of print. PMID: 38561049.
- 19. Mullen A, Armstrong S, Talbert T, **Bumgardner C**. CLASSify: A Web-Based Tool for Machine Learning, AMIA Annual Symposium Proceedings. March 2024
- 20. **Bumgardner C**, Mullen A, Armstrong S, Hickey C, Marek V, Talbert T. Local Large Language Models for Complex Structured Tasks, AMIA Annual Symposium Proceedings. March 2024
- 21. Jing Di, Caylin Hickey, **Cody Bumgardner**, Mustafa Yousif, Mauricio Zapata, Therese Bocklage, Bonnie Balzer, Marilyn M. Bui, Jerad M. Gardner, Liron Pantanowitz, Shadi A. Qasem, Utility of artificial

- intelligence in a binary classification of soft tissue tumors, Journal of Pathology Informatics, Volume 15, 2024, 100368, ISSN 2153-3539, https://doi.org/10.1016/j.jpi.2024.100368.
- 22. Christian Rhudy, Courtney Perry, Michael Wesley, David Fardo, Cody Bumgardner, Syed Hassan, Terrence Barrett, Jeffery Talbert, Applying Machine Learning Models Derived from Administrative Claims Data to Predict Medication Nonadherence in Patients Self-Administering Biologic Medications for Inflammatory Bowel Disease, *Crohn's & Colitis 360*, Volume 6, Issue 3, July 2024, otae039, https://doi.org/10.1093/crocol/otae039
- 23. Sears K, Hickey C, Vincent R, Stocks-Candelaria J, Tate J, **Bumgardner C**, Zhang S, Miller JB. Establishing a Variant Allele Frequency Cutoff for Manual Curation of Medical Exome Sequencing Data. J Mol Diagn. 2024 Oct 18:S1525-1578(24)00250-2. doi: 10.1016/j.jmoldx.2024.09.006. Epub ahead of print. PMID: 39427756.
- 24. Nash, J.B., Bumgardner, C., Roggenkamp, S., Friskney, D., Armstrong, S., (November 2024). *Illuminating the Shadows: Using AI to Expose Inequities in State Education Data*. Presentation at the Annual Convention of the University Council for Educational Administration, Los Angeles, CA

Books, Book Chapters, Monographs

- 1. **Bumgardner**, V.K.C, and Victor W. Marek, Educational Applications of Cloud, Book Chapter Encyclopedia of Cloud Computing, Wiley-IEEE Publication, 2016, Print.
- 2. **Bumgardner**, Vernon. Open Stack in Action. New York: Manning, 2016. Print
- 3. **Bumgardner**, Vernon, Hickey, Caylin. Making Sense of Edge Computing. New York: Manning, 2021. Pre-Print

Letters, Book Reviews, Lay Press

- 1. Van den Berg, Marcel. Managing Microsoft Hybrid Clouds. Birmingham, UK: PACKT, 2015. Print
- 2. Case Study: HPC tailored to research needs with OpenStack cloud. Austin, TX, Dell Inc, 2017. Print
- 3. University of Kentucky researchers move massive data loads easily with an SDN-enabled campus network. Palo Alto, CA, HPE, 2017. Print
- 4. How OpenStack HPC Powers Improvements in Scientific Research. San Diego, CA, HPCwire, 2018. Print

B. ABSTRACT PRESENTATIONS

State/Regional Meetings

- 1. **Bumgardner, V.K.C.** 2019. Agent-based Systems in Biomedical. 3rd Annual Commonwealth Computational Summit, Lexington, Kentucky, October 2019.
- 2. **Bumgardner**, **V.K.C.** 2020. Distributed Agents in Pathology Informatics. Fall Virtual Conference KY & IN Chapters of HIMSS, October 2020.

- 3. **Bumgardner, V.K.C.** 2020. Cresco: An edge computing framework. 4th Annual Commonwealth Computational Summit, Lexington, Kentucky, October 2020.
- 4. **Bumgardner**, V.K.C. 2020. Distributed Agents in Pathology Informatics. Ky & In Chapters of HIMSS Fall Virtual, Virtual, October 2020.

National/International Meetings

- 5. Mastrangelo MJ Jr, Sheetz M, **Bumgardner V.K.C**, George I, Mylniec P, Bellinghausen J. 2003. Exhibit: Immersive Real-Time Tele-Collaboration of Complex Volumetric Medical Imaging for Surgical Planning. I2/NLM/ Radiological Society of North America Annual Meeting exhibit Chicago, Illinois. December 2003
- 6. Beech W, **Bumgardner V.K.C**, Hesse U, Van Horn D, Jaromczyk J, Schardl C. 2006. XGrid Implementation of the InterProScan for the Epichloe festucae Genome Project. Poster session at the International Society for Computational Biology, Fortaleza, Brazil, August 2006
- 7. **Bumgardner**, V.K.C. 2014. Demonstration of GENI aggregate-based reporting and alerting system prototype. Poster/Demo session presented at the 19th GENI Engineering Conference, Atlanta, Georgia, USA, March 2014.
- 8. **Bumgardner**, V.K.C. 2014. Podium: Scalable hybrid stream and Hadoop network analysis system. Session on distributed system performance presented at ICPE14, Dublin, Ireland, March 2014.
- 9. **Bumgardner**, V.K.C. 2014. Podium: Demonstration of GENI aggregate-based reporting and alerting system. Operations session presented at the 21st GENI Engineering Conference, Bloomington, Indiana, USA, October 2014.
- 10. **Bumgardner**, V.K.C. 2015. Demonstration of multi-level real-time stream reporting system. Demo/Poster session presented at the 22st GENI Engineering Conference, Washington, D.C., USA, March 2015.
- 11. **Bumgardner**, V.K.C. 2016. Podium: Demonstration of GENI monitoring session. Operations session presented at the 24th GENI Engineering Conference, Tempe, AZ, USA, March 2016.
- 12. **Bumgardner**, **V.K.C.** 2016. Collating time-series resource data for system-wide job profiling. Workshop on Analytics for Network and Service Management presented at AnNet 2016, Istanbul, Turkey, April 2016.
- 13. **Bumgardner**, V.K.C. 2016. Constellation: A Secure Self-Optimizing Framework for Genomic Processing. Healthcom Conference on E-health Networking, Application & Services, Munich, Germany, September 2016.
- 14. **Bumgardner**, **V.K.C**, et al. 2016. Programmable Privacy-Preserving Network Measurement for Network Usage Analysis and Troubleshooting. Internet2 Technology Exchange, Miami, FL, USA, September 2016.
- 15. **Bumgardner**, **V.K.C.** 2016. Cresco: A distributed agent-based edge computing framework. The International Workshop on Green ICT and Smart Networking (GISN 2016), Montreal Quebec Canada, November 2016.
- 16. Farrar D, Hayes J, Adkins G, Griffioen J, **Bumgardner V.** NetSecOps and Policy Checking. Grand Challenges of Traceability: The Next Ten Years, 2017; p42

- 17. **Bumgardner, V.K.C.**, Hickey, Caylin, Shapiro, Scott, Cottle, Chad 2017. Cresco Framework: Edge Computing in Smart Cities. Poster session presented at the 2017 Smart Cities Connect Conference and Expo, Austin, TX, USA, June 2017.
- 18. **Bumgardner, V.K.C.**, Hickey, Caylin, Insko, George, Watkins, Brad 2017. Cresco Framework: Edge Computing in Defense Management. Poster session presented at the 2017 Defense Innovation Challenges, Tampa, FL, USA, October 2017.
- 19. **Bumgardner**, V.K.C. 2018. Edge-enabled Distributed Network Measurement. International Workshop on Smart Edge Computing and Networking (SmartEdge'18), Athens, Greece, March 2018.
- 20. Chappell, J, Pike, C, **Bumgardner**, V.K.C., Seales, B, Griffioen, J 2018. A Simplified SDN-Driven All-Campus Science DMZ. International Symposium on Grids and Clouds, Taipei, March 2018.
- 21. Seales, B, **Bumgardner**, V.K.C., Pike, C 2018. Curriculum in the Cloud: Using OpenStack to Transform Computer Science. International Symposium on Grids and Clouds, Taipei, March 2018.
- 22. **Bumgardner, V.K.C.**, Insko, George, Hickey, Caylin 2018. Cresco Framework: Edge Computing in Homeland Security. Poster session presented at the 4th Annual Kentucky Intelligence, Lexington, KY, USA, April 2018.
- 23. Luo, Y., Ghinita, G., **Bumgardner, V.K.C.**, McGarry M. 2018. Programmable privacy-preserving network measurement for network usage analysis and troubleshooting. Demonstration presented at Géant TNC18, Trondheim, Norway, June 2018.
- 24. **Bumgardner**, **V.K.C.** 2018. Edge framework for resource-aware distributed applications. Poster session presented at Géant TNC18, Trondheim, Norway, June 2018.
- 25. **Bumgardner, V.K.C.**, Hickey, Caylin, Watkins, Brad, Seyedtalebi, Nima 2018. Edge computing in AI and Big Data applications. Poster session presented at the Defense and Smart Cities TechConnect, Tampa, FL, USA, October 2018.
- 26. Hickey, Caylin, **Bumgardner**, V.K.C., Nandakumar, Kannabiran 2019. Distributed Automated Processing of Clinical Genomic Panels Leveraging Cloud Infrastructure. Poster session presented at the Pathology Informatics Summit 2019, Pittsburgh, PA, USA, May 8, 2019.
- 27. **Bumgardner**, V.K.C, Hickey, C, Seyedtalebi, N. Agent Communications in Edge Computing, Second International Conference on Industrial Internet (ICII), Orlando, FL, USA, November 12, 2019.
- 28. **Bumgardner**, V.K.C, Hickey, Caylin. Huge Data in Medicine, Large Scale Networking (LSN) Workshop on Huge Data: A Computing, Networking, and Distributed Systems Perspective, Chicago, IL, (virtual Lexington, KY), April 13, 2020.
- 29. Ismail, Bahaaeldeen, Benrajab, Karim, Hickey, Caylin, Ahmed, Muhammad Sammy, **Bumgardner, V.K.C**. Development of a machine learning model to predict unfavorable outcomes among patients with acute hepatitis A virus infection. (2020), 1018. AASLD Hepatology, 72: 1160A-1225A. https://doi.org/10.1002/hep.31580
- 30. Yousif, Hickey, Zapata, Bocklage, Balizer, Bui, Gardner, **Bumgardner**, Pantanowitz, Qasem. Curbside Consults for Soft Tissue Pathology Using While Slide Images. Abstracts from USCAP 2021: Index of Abstract Authors. Mod Pathol 34, 1338–1358 (2021). https://doi.org/10.1038/s41379-021-00774-1

- 31. Popescu, **Bumgardner**, Iancu, Mussman, Hughes, Fowlkes, Preda. Analysis of mortality and cardiometabolic comorbidities in Covid-19 patients from the Eastern European region. Abstracts from IDF 2021 Congress: Abstract number: IDF21-0567 (2021)
- 32. Di, Hickey, **Bumgardner**, Qasem. Cell-Specific Parameters Differentiate Benign from Malignant Soft Tissue Tumors. Abstracts from USCAP 2022
- 33. **Bumgardner**, Hickey, Armstrong, Qasem. Self-service Platform for Continuous Collection, Processing, and Evaluation of Pathology Imaging. 2022 CTSA iEC Spring Meeting
- 34. **Bumgardner**, Hickey, Armstrong, Qasem. Automated Pathology Imaging Model Training System. 2022 Pathology Informatics Summit
- 35. Hickey, Caylin, **Bumgardner**, **V.K.C**, Miller, Justin 2022, Leveraging edge computing for workflow tracking and management to improve academic and healthcare security, efficiency, and auditability. Poster session presented at 6th Annual Commonwealth Computational Summit, Lexington, KY, USA, October 2022.
- 36. Virodov A, **Bumgardner C.** Using iSyntax Whole Slide Image Format in Research/ML. AMIA Annual Symposium Proceedings. March 2023
- 37. Jarrells. Armstrong, Hickey, **Bumgardner**, Yu. Web-based Application of an Automated Quality Assurance Monitoring System for a Pain Management Panel by LC-MS/MS. American Association for Clinical Chemistry (AACC) Scientific Meeting & Clinical Lab Expo. 2023
- 38. Mullen, A., Rock, P., Harris, D., **Bumgardner**, C., Slavova, S., & Talbert, J. June, 2024. *Forecasting Opioid Overdose Incidents for Rapid Actionable Data for Opioid Response in Kentucky (RADOR-KY)*Poster Presentation. The College on Problems of Drug Dependence, Montreal, CA.

C. SPONSORED RESEARCH PROJECTS, GRANT & CONTRACT ACTIVITIES

Active

Project Title: "Federated Digital Pathology Platform for AD/ADRD Research and Diagnostics"

Project Number: 1U24NS133945-01 **Principal Investigator(s):** P. Nelson, MD

Role in Project: Co-PI **Effort:** 10 %

Institution/University: University of Kentucky

Source of Funding: NIH/NINDS **Duration of Project:** 9/2023-08/2025 **Total Award:** \$1,778,991

Project Title: "AppalTRuST Project 3: Impact of proposed tobacco product rules in Appalachia

on consumption and product switching with the Experimental Tobacco

Marketplace"

Project Number: 1U54DA058256-01 Principal Investigator(s): M. Koffarnus, PhD Role in Project: Co-Investigator **Effort:** 10 %

Institution/University: University of Kentucky

Source of Funding: NIH/NIDA **Duration of Project:** 9/2023-08/2028 **Total Award:** \$19,973,288

Project Title: "Rapid Actionable Data for Opioid Response in Kentucky (RADOR-KY)"

Project Number:R01 DA057605 **Principal Investigator(s):**S. Slavova, PhD
Co-Investigator

Effort: 20 %

Institution/University: University of Kentucky

Source of Funding: NIH/NIDA
Duration of Project: 9/2022-09/2025
Total Award: \$3,416,472

Project Title: "MRI: Acquisition of the Kentucky Research Informatics Composable Cloud

(KyRICC)"

Project Number: OAC-2216140
Principal Investigator(s): Jeff Talbert, PhD

Role in Project: Co-PI **Effort:** 0 %

Institution/University: University of Kentucky

Source of Funding: NSF

Duration of Project: 10/2022-09/2023 **Total Award:** \$1,700,000

Project Title: "Covid 19: Researching COVID To Enhance Recovery: IDeA States COnsortium

for clinical REsearch (ISCORE) Network"

Project Number: OT2 HL161847-01 **Principal Investigator(s):** Sidney Whiteheart, PhD

Role in Project: Co-Investigator

Effort: 5 %

Institution/University: University of Kentucky

Source of Funding: NIH

Duration of Project: 07/2021-06/2025 **Total Award:** \$4,650,120

Project Title: "Kentucky Center for Clinical Translational Science"

Project Number: U54 TR004040-01
Principal Investigator(s): P. Kern, PhD
Role in Project: Core Director

Effort: 20 %

Institution/University: University of Kentucky

Source of Funding: NIH/NCATS
Duration of Project: 10/2021-03/2027
Total Award: \$16,599,590

Project Title: "CPE Fellow: KyRON Operations"

Project Number: 49026424

Principal Investigator(s): C. Bumgardner, PhD

Role in Project: PI Effort: 5 %

Institution/University: University of Kentucky
Source of Funding: State of Kentucky
Duration of Project: 1/2021-01/2027

Total Award: \$30,000

Project Title: "Circadian Regulation of Metabolic Risk in Mice and Women: Role of Estrogen

and Time-Restricted Feeding"

Project Number: R01 DK124774
Principal Investigator(s): J. Pendergast, PhD
Role in Project: Co-Investigator

Effort: 2.5 %

Institution/University: University of Kentucky

Source of Funding: NIH/HHS

Duration of Project: 10/2021-03/2027

Total Award: \$3,235,607

Project Title: "Artificial Intelligence in Medicine (AIM) Alliance "

Project Number: N/A

Principal Investigator(s): Cody Bumgardner, PhD, Jeff Talbert, PhD, Jennifer Wang, MD

Role in Project: Co-PI **Effort:** 0 %

Institution/University: University of Kentucky **Source of Funding:** College of Medicine **Duration of Project:** 07/2021-12/2024

Total Award: \$100,000

Project Title: "Re-connect: Personalized, non-monetary smartphone-based rewards for smoking

cessation "

Project Number: R34 DA052920
Principal Investigator(s): B. Raiff, PhD
Role in Project: Co-Investigator

Effort: 5 %

Institution/University: University of Kentucky

Source of Funding: NIH/HHS

Duration of Project: 03/2021-04/2024

Total Award: \$272,764

Project Title: "Functional and genomic signatures of escalated fentanyl use"

Project Number:R34 DA052920 **Principal Investigator(s):**J. Ortinski, PhD
Co-Investigator

Effort: 5 %

Institution/University: University of Kentucky

Source of Funding: NIH/NIDA

Duration of Project: 03/2021-12/2025

Total Award: \$3,237,608

Project Title: "Remote alcohol monitoring to facilitate abstinence reinforcement"

Project Number: R01 AA026605
Principal Investigator(s): M. Koffarnus, PhD
Role in Project: Co-Investigator

Effort: 10 %

Institution/University: University of Kentucky

Source of Funding: NIH/NIAAA **Duration of Project:** 09/2018-08/2024 **Grant Number:** 7R01AA026605-02

Total Award: \$2,959,908

Project Title: "Shriners Hospital LEADeR Interface"

Principal Investigator(s): C. Bumgardner, PhD

Role in Project: PI **Effort:** 10 %

Institution/University: University of Kentucky
Source of Funding: Shriners Hospital for Children

Duration of Project: 12/2022-11/2024

Total Award: \$85,000

Inactive

Project Title: "Kentucky CAN HEAL (Communities and Networks Helping End Addiction

Long-term)"

Project Number: 1UM1DA049406 **Principal Investigator(s):** S. Walsh, PhD **Role in Project:** Co-Investigator

Effort: 5 %

Institution/University: University of Kentucky

Source of Funding: NIH/NIDA
Duration of Project: 4/2021-04/2024
Total Award: \$20,388,990

Project Title: "Collaborative Research: CICI: Secure and Resilient Architecture: NetSecOps --

Policy-Driven, Knowledge-Centric, Holistic Network Security Operations

Architecture"

Project Number: 3200000871 **Principal Investigator(s):** J. Griffioen, PhD

Role in Project: Co-Principal Investigator

Effort: 2 %

Institution/University: University of Kentucky

Source of Funding: NSF

Duration of Project: 09/2016-08/2021

Total Award: \$499,925 Grant Number: ACI-1642134

Project Title: "MRI: Acquisition of the Kentucky Research Informatics Cloud (KyRIC)"

Project Number: 3200000952 **Principal Investigator(s):** GQ Zhang, PhD

Role in Project: SP

Effort: 10 %

Institution/University: University of Kentucky

Source of Funding: NSF

 Duration of Project:
 08/2016-07/2020

 Total Award:
 \$2,240,000

 Grant Number:
 ACI-1626364

Project Title: "IRNC: AMI: Collaborative Research: Software-Defined and Privacy-Preserving

Network Measurement Instrument and Services for Understanding Data-Driven

Science Discovery"

Project Number: 3048112416

Principal Investigator(s): V. Bumgardner, PhD

Role in Project: Principal Investigator/Co-Principal Investigator

Effort: 10 %

Institution/University: University of Kentucky

Source of Funding: NSF

Duration of Project: 04/2015-03/2019

Total Award: \$502,104

Grant Number: IRNC-1450937

Project Title: "GENI Going Forward: Experimenter Tool Support, Operations Monitoring and

Reporting"

Project Number: 1536090

Principal Investigator(s): J. Griffioen, PhD

Role in Project: Co-Principal Investigator

Effort: 2 %

Institution/University: University of Kentucky

Source of Funding: NSF - C.O. Raytheon BBN Technologies Corp

Duration of Project: 04/2016-12/2019

Total Award: \$640.618

Grant Number: CNS-1536090 Subcontract

Project Title: "CC*DNI Networking Infrastructure: An Software Defined Networking-Enabled

Research Infrastructure"

Project Number: 3200000225

Principal Investigator(s): V. Bumgardner, PhD **Role in Project:** Principal Investigator

Effort: 5 %

Institution/University: University of Kentucky

Source of Funding: NSF

Duration of Project: 10/2015-09/2018

Total Award: \$486,572 Grant Number: CNS-1541380

Project Title: "CC-NIE Integration: Advancing Science through Next Generation SDN

Networks"

Project Number: 1246332

Principal Investigator(s): V. Kellen, PhD and J. Griffioen, PhD

Role in Project: Senior Personnel

Effort: 10 %

Institution/University: University of Kentucky Source of Funding: NSF - U. of Kentucky 10/2012-09/2015

Total Award: \$997,437 **Grant Number:** OCI-1246332

Project Title: "University of Kentucky Ops Transition (GENI Network Monitoring)"

Project Number: 1346688

Principal Investigator(s): V. Bumgardner, PhD **Role in Project:** Principal Investigator

Effort: 10 %

Institution/University: University of Kentucky

Source of Funding: NSF - Subcontract 1939C C.O. Raytheon BBN Technologies Corp.

Duration of Project: 10/2013-09/2015

Total Award: \$254,604 Grant Number: CNS-1346688

Project Title: "University of Kentucky Ops Transition (Additional Effort Funding Request for

Agreement No. 1939C)"

Project Number: 1346688

Principal Investigator(s): V. Bumgardner, PhD **Role in Project:** Principal Investigator

Effort: 2 %

Institution/University: University of Kentucky

Source of Funding: NSF - Subcontract 1939C C.O. Raytheon BBN Technologies Corp.

Duration of Project: 07/2015-06/2016

Total Award: \$39,846

Grant Number: CNS-1346688

Project Title: "University of Kentucky Ops Transition (Additional Effort Funding Request for

Agreement No. 1939C)"

Project Number: 1346688

Principal Investigator(s): J. Griffioen, PhD

Role in Project: Co-Principal Investigator

Effort: 2 %

Institution/University: University of Kentucky

Source of Funding: NSF - Subcontract 1939C C.O. Raytheon BBN Technologies

Corp.

Duration of Project: 04/2016-09/2016

Total Award: \$64,528

Grant Number: CNS-1346688

Project Title: "GENI Going Forward"

Project Number: 1536090

Principal Investigator(s): J. Griffioen, PhD

Role in Project: Co-Principal Investigator

Effort: 2 %

Institution/University: University of Kentucky

Source of Funding: NSF - C.O. Raytheon BBN Technologies Corp

Duration of Project: 04/2016-03/2017

Total Award: \$258,112

Grant Number: CNS-1536090 Subcontract

D. OTHER CREATIVE ACTIVITIES

Cresco.Io Edge Computing

06/2015-present Founder of one of the first open source edge computing frameworks.

Constellation Genomic Processing

06/2015-present Co-founder of an open source framework for secure cloud-based self-optimizing genomic

processing

Classify

05/2023-present Co-founder of an open source framework for self-service machine learning, data

synthesis, and explainable AI, with tabular data

LLM Factory

05/2024-present Co-founder of an open source framework for self-service large language model (LLM)

training, evaluation, and OpenAI-compatible API services, including embeddings, and

speech-to-text.

XIV. OTHER ACTIVITIES

OpenStack Foundation

03/2014-08/2017 OpenStack Kentucky Community Leader

Docker Inc.

04/2015-08/2017 Docker Kentucky Community Leader

NVIDIA De-ID Tooling & Data Working Group

04/2022-05/2023 Co-Lead

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