David Ferry

Abstract

A computer systems instructor emphasizing high-quality teaching and curriculum development with background in high performance, real-time, safety critical, cyber-physical systems.

Work Experience

Period **August 2016 — Present**
Employer **Saint Louis University** St. Louis, Missouri
Job Title **NTT Associate Professor**

Teaches introductory, advanced, and graduate level courses in computer systems and software engineering. Develops courses and curriculum at introductory, advanced, and graduate level. Consistently scores above department average in instructor evaluations. Delivers a high volume of credit hours. Manages and implements department assessment plan.

Undergraduate Program Coordinator AY2022-2023

Administrates undergraduate programs in the Computer Science Department in consultation with department chair and pertinent department committees. Manages advising relationships, assessment efforts, evaluates transfer requests and course substitutions, certifies degree completion.

1818 Dual Credit Program Faculty Liaison Spring 2018 - Current

Manages external relationships with partner high schools offering dual-credit enrollment. Provides professional development and training in program policies and procedures.

Period **May 2010 — August 2016**
Employer **Washington University in St. Louis** St. Louis, Missouri
Job Title **Research Assistant and Ph.D. Candidate**

Published in top conferences for Real-Time Systems research. Mentored numerous undergraduate independent study, REUs and master's thesis student projects. Developed and taught Advanced Operating Systems course.

Period **August 2005 — May 2010 (Part Time)**
Employer **Information Technology Services** Truman State University, Missouri
Job Title **Web Team, Help Desk and Academic Technology Support**

Created custom websites and website features for academic units. Wrote projector-switching software for technology classrooms. Provided software and hardware support for student, staff, and faculty. Rented and inspected academic technology.

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Education

Period	**May 2010 — July 2018**	
Degree	**Ph.D. in Computer Science**	
University	**Washington University in St. Louis**	St. Louis, Missouri
	Dissertation: Concurrency Platforms for Real-Time and Cyber-Physical Systems	
	Advisers: Kunal Agrawal and Chris Gill	

Period	**August 2004 — May 2010**	
Degrees	**Bachelor of Science in Computer Science**	
	Bachelor of Science in Mathematics	
University	**Truman State University**	Kirksville, Missouri
	Capstone: Cache Modeling Using Spatial Locality of Reference	
	Summer Research: Gendered Word Choice in Online Blogs	

Teaching

CSCI 1060	Scientific Programming	8 iterations,	most recent: Spring 2022
Developed new flipped style instruction prior to COVID-19, manages adjuncts for course, intro programming for science and engineering students			
CSCI 1090	The Most Human Computer	3 iterations,	most recent: Fall 2023
New course developed for new university core, intro programming			
CSCI 2400	Computer Architecture	3 iterations,	most recent: Fall 2017
CSCI 2510	Principles of Computing Systems	2 iterations,	most recent: Fall 2023
CSCI 3200	Programming Languages		will teach: Spring 2024
CSCI 3250 CSCI 5250	Compilers	1 iteration,	most recent: Spring 2022
Last taught in 2009, completely updated for 2022			
CSCI 3500	Operating Systems	12 iterations,	most recent: Spring 2022
Significant revision in Fall 2016, more than 50% new course content			
CSCI 4961 CSCI 4962	Capstone Project 1 Capstone Project 2	7 iterations, 6 iterations,	most recent: Spring 2021 most recent: Spring 2021
Oversaw growth from 15 enrollees to 40 in a semester, added agile development philosophy, significantly expanded professional development content			
CSCI 5030	Principles of Software Development	2 iterations,	most recent: Fall 2020
CSCI 5960 CSCI 5961	Software Engineering Capstone Artificial Intelligence Capstone	3 iterations, 1 iteration,	most recent: Spring 2021 most recent: Spring 2021
New course, first time teaching			
CSE 522S	Advanced Operating Systems	1 iteration,	most recent: Spring 2016
New course, taught at Washington University in St. Louis			

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Department Service

Non-Tenure-Track Search Committee Chair (twice) FL22-SP23, FL23-SP24

Non-Tenure-Track Search Committee FL21-SP22

Solicit, review, and interview applicants for Non-Tenure-Track positions in the CS department

Assessment Committee Chair FL21-Current

Assessment Committee FL20-SP21

Implemented first complete assessment cycle under department assessment plan. Reports program assessment findings, authors yearly department assessment reports, identifies opportunities for improving assessment program and classroom instruction, and manages 3-year assessment program review cycle

Undergraduate Curriculum Committee Chair FL22-Current

Undergraduate Curriculum Committee FL21-SP22

Revised Computer Systems curriculum in the CS department, resulting in two new classes and the retirement of two existing classes

Technology Committee Chair FL19-SP21

Surveyed department faculty and identified areas of improvement for CS department academic technology

Outreach Committee Member FL19-SP21

Conducted information sessions and career day discussions at local high schools and at SLU

Assessment Committee Member FL19-SP21

Wrote and trialed assessment rubrics for CSCI1060 and CSCI 3300

CS Dept. COVID Contact Tracing and Seat Registration Summer 2021

Wrote bespoke software for Computer Science Department to log daily student seating and facilitate contact tracing during the COVID pandemic

University Service

1818 Dual Credit Program Faculty Liaison FL19-Current

Manages instructor relationships with partner high schools, evaluates partner instructor performance, provides professional development and training to partner instructors

School of Science and Engineering Curriculum Refinement Committee FL22-SP23

Implemented school-wide review and identified opportunities and redundancies between departments in the undergraduate curriculum

Curricular Development

Part of the ad-hoc committee to revise the computer systems curriculum in our department. Changes resulted in two new courses *CSCI 2500 - Computer Organization and Systems* and *CSCI 2510 - Principles of Computing Systems*. Contributed significantly to the curricular design of these courses.

CSCI 1090 - The Most Human Computer - Conceived of for the new university Core. Course has been accepted as highly desirable, and is scheduled for Fall 2022

CSCI 3250/5250 - Compilers - Not taught in department since 2009, completely overhauled curriculum

CSCI 3500 - Operating Systems - Greater than 50% of this course was modified/updated for first teaching in 2016

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CSCI 5960/5961 - Grad Software Engineering and AI Capstones - New courses to the department, condensing the traditional capstone experience into a single semester

CSE 522S - Advanced Operating Systems - Developed for Computer Systems graduate students needing a deeper understanding of kernel development philosophy, of how the Linux kernel executes, and how to modify or add to Linux kernel source code

Awards

Nominated Excellence in Undergraduate Teaching Award - nominated anonymously by an undergraduate student

Funding

2018 "A Virtual Reality Interface for Remote Drone Operations" Srikanth Gururajan and David Ferry Co-PI, President's Research Fund (SLU internal award), $42,070

Professional Development Given

2019 1818 Professional Development, "Using Git in the High School Classroom", Saint Louis University, July 2019

2020 1818 Professional Development, "Diversity and Inclusion Barriers in Computer Science from High School to College", Saint Louis University, August 2020

2021 1818 Professional Development, "Retention Strategies for Intro CS Courses", Saint Louis University, July 2021

Professional Development Taken

2013 Invited participant: Hybrid Simulation Workshop, Network for Earthquake Engineering Simulation (NEES) Earthquake Summit 2013, Reno, Nevada. August 2013

2017 Invited participant: Multi-hazard Engineering Collaboratory for Hybrid Simulation (MECHS): Breaking Barriers and Building Capacity, University of California, San Diego. December 2017

2018 STEM Brown Bag: The Flipped Classroom, Reinert Center for Transformative Teaching and Learning, Saint Louis University, October 2018

2019 Cyber-Physical Systems and Internet-of-Things Week, Montreal, Canada. April 15-18, 2019

2019 Research Computing Seminar - GPU Computing, Research Computing, Saint Louis University, October, 2019

2020 STEM Brown Bag: Remote/Online Teaching and STEM, April, 2020

2022 Ignite Workshop 1: The Ignatian Pedagogical Paradigm, Gina Merys, Reinert Center for Transformative Teaching and Learning, Saint Louis University, March 2022

2022 Ignite Workshop 2: Man at Play and Evoking Wonder and Awe in teaching, Fr. Matthew Baugh S.J., Saint Louis University, May 2022

2022 Ignite Workshop 3: Syllabus Development, Outcomes, and Assessment, Gina Merys, Reinert Center for Transformative Teaching and Learning, Saint Louis University, August 2022

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Workshop Publications

2020 Rajashekar, S.C., Gururajan, S., Esposito, F., Ferry, D., "Reconfigurable swarms and multi-user, cooperative UAS flights through a virtual reality interface," 2020 AIAA SciTech Forum and Exposition, January 2020. https://doi.org/10.2514/6.2020-0737

2019 Ferry, D., "Incorporating Physical Dynamics Into Systems Mechanisms," 1st International Workshop on Next-Generation Operating Systems for Cyber-Physical Systems (NGOSCPS), April 2019

Refereed Conferences

2016 J. Li, D. Ferry, S. Ahuja, K. Agrawal, C. Gill and C. Lu, "Mixed-Criticality Federated Scheduling for Parallel Real-Time Tasks," IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'16), April 2016. Outstanding Paper Award

2014 D. Ferry, G. Bunting, A. Megareh, S. Dyke, A. Prakash, K. Agrawal, C. Gill and C. Lu, "Real-Time System Support for Hybrid Structural Simulation," ACM International Conference on Embedded Software (EMSOFT'14), October 2014.

2014 D. Ferry, A. Megareh, G. Bunting, A. Prakash, K. Agrawal, C. Gill, C. Lu and S. Dyke, "On the Performance of a Highly Parallelizable Concurrency Platform for Real-Time Hybrid Simulation," World Conference on Structural Control and Monitoring (6WCSCM), July 2014.

2013 D. Ferry, J. Li, M. Mahadevan, K. Agrawal, C.D. Gill and C. Lu, "A Real-Time Scheduling Service for Parallel Tasks," IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'13), April 2013.

Refereed Journals

2015 J. Li, Z. Luo, D. Ferry, K. Agrawal, C. Gill and C. Lu, "Global EDF Scheduling for Parallel Real-Time Tasks," Real-Time Systems, Special Issue on Best Papers of ECRTS'13, 51(4): 395- 439, July 2015.

2014 A. Saifullah, D. Ferry, J. Li, K. Agrawal, C. Lu and C. Gill, "Parallel Real-Time Scheduling of DAGs," IEEE Transactions on Parallel and Distributed Systems, 25(12): 3242-3252, December 2014.

Skills

Computer Systems	Real-Time Systems, Safety-Critical Systems, Mixed-Criticality Systems, Parallel Computing, Distributed Computing, High-Performance, Computing, Scalable Systems, Cyber-Physical Systems, Systems Programming, Tools Development, Linux Kernel Hacking Linux administration, Data Acquisition (DAQ)
Generative AI	Neural Radiance Fields (NeRFs), Stable Diffusion, Diffusion Models, Low-Rank Adapatations (LoRAs)
Computer Languages	C, C++, Cilk Plus, HTML, Java, JavaScript, OpenMP, PHP, Prolog, Python, MATLAB, ML, MPI, SQL
Software	BLAS/LAPACK, National Instruments DAQ, NI-Linux DAQ
Dev. Tools	Git, GitHub, GitLab, SVN
Systems	Linux, Windows, MacOS, Raspberry Pi, Arduino
Educational Tech	Canvas, Blackboard, Banner, Internet Native Banner, Faculty 180, Workday, Cognos, Tableau, CollegeSource, Transferology
Hobbies	Automotive Repair, Woodworking, Metalworking

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