

Robert Cordingly

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EDUCATION

University of Washington, Tacoma WA - *PhD: Computer Science and Systems*

Fall 2020 - Present - 3.90 GPA

University of Washington, Tacoma WA - *MS: Computer Science and Systems*

Fall 2018 - Summer 2020 - 3.95 GPA

University of Washington, Tacoma WA - *BS: Computer Science and Systems*

Fall 2016 - Spring 2018 - 3.81 GPA - Cum Laude

Tacoma Community College, Tacoma WA - *AS: Computer Science*

2016 - 3.87 GPA

PROFESSIONAL EXPERIENCE

University of Washington, Tacoma WA - *Predoctoral Instructor, Graduate Teaching Associate*

2022 - Present

- Since Spring 2023 I have taught TCSS 501 and TCSS 505 for the Graduate Certificate in Software Development Engineering program as the Instructor of Record. Across all sessions I have taught I have achieved an average rating of 4.6/5 in course evaluations. Since Fall 2022 I taught an introductory Python Bootcamp for the GC-SDE program. In Fall 2022 I taught a recitation lab session for TCSS 501 and TCSS 502.

United States Department of Agriculture - *Software Developer*

December 2022 - March 2025

- TODO

University of Washington, Tacoma WA - *Graduate Research Assistant, Student Assistant*

2019 - Present

- While working with Professor Wes Lloyd I have made 18 publications (9 first authors) to many conferences and workshops. My research has focused on a range of topics including cloud computing, serverless computing, performance modeling, federated computing, and green computing.
- Since 2022 I have worked with Colorado State University and the USDA Agricultural Research Service to develop an interface to facilitate particle swarm optimization workloads on the cloud.

BioDepot LLC - *Software Developer*

Summer 2021, Fall 2021

- TODO

University of Washington, Tacoma WA - Grader

Autumn 2018 (46 students), Winter 2019 (40 students), Spring 2021 (68 students)

- For three quarters I graded assignments for Professor Wes Lloyd's TCSS 422 Computer Operating Systems class. This position provided an introduction to working in academia.

Coded Games, Lakewood WA - Software Developer, Sole Proprietor

2015 - Present

- Since 2007, I have been creating video games as a hobby and have developed dozens of games, including Cloud Constructor, an educational game for Code.org's Hour of Code.
codedgames.com hourofcode.com/uwcloud

PUBLICATIONS

- Chen, X., **Cordingly, R.**, Hung, L.H., Lloyd, W., Large Language Models for Serverless Function Generation: An Investigation on FaaS Performance, 2025 11th International Workshop on Serverless Computing (WOSC 2025), Dec 15, 2025.
- **Cordingly, R.**, Chen, X., Hung, L.H., Lloyd, W., Sky Computing for Serverless: Infrastructure Assessment to Support Performance Enhancement, 2025 18th IEEE/ACM Int. Conf. on Utility and Cloud Computing (UCC 2025), Dec 1-4, 2025, 10p. (Acceptance Rate 31%)
- Kondo, T., Bomhold, A., **Cordingly, R.**, Zhao, D., Lloyd, W., Distributed FaaSRunner: Enabling Reproducible Multi-node, Multi-threaded Function-as-a-Service Endpoint Testing, 2025 13th IEEE International Conference on Cloud Engineering (IC2E 2025), Sept 23-26, 2025. (Acceptance Rate 40.8%)
- Jin, R., **Cordingly, R.**, Zhao, D., Lloyd, W., GraphQL vs. REST: Investigating Performance and Scalability for Serverless Database Abstraction, 2025 13th IEEE International Conference on Cloud Engineering (IC2E 2025), Sept 23-26, 2025. (Acceptance Rate 40.8%)
- Chen, X., **Cordingly, R.**, Hung, L.H., Lloyd, W., Predicting ARM64 Serverless Function Runtime: Leveraging function profiling for generalized performance models, 2024 17th IEEE/ACM Int. Conf. on Utility and Cloud Computing (UCC 2024), Dec 16-19, 2024, 10p. (Acceptance Rate 35%)
- Jin, R., **Cordingly, R.**, Zhao, D., Lloyd, W., GraphQL vs. REST: A Performance and Cost Investigation for Serverless Applications, 2024 10th International Workshop on Serverless Computing (WOSC 2024), Dec 2-5, 2024.
- Kaur, J., **Cordingly, R.**, Hung, L.H. and Lloyd, W., 2024, June. Towards Low-Cost Global Highly Available Large Container-Based Serverless Functions. In 2024 IEEE Cloud Summit (pp. 7-12). IEEE. (Best Paper Award)
- Chen, X., **Cordingly, R.**, Hung, L.H., Lloyd, W., X86 vs. ARM64: An Investigation of Factors Influencing Serverless Performance, 2023 9th International Workshop on Serverless Computing (WOSC 2023), Dec 11-15, 2023.
- **Cordingly, R.**, Kaur, J., Dwivedi, D. and Lloyd, W., 2023, September. Towards Serverless Sky Computing: An Investigation on Global Workload Distribution to Mitigate Carbon Intensity, Network Latency, and Cost. In 2023 IEEE International Conference on Cloud Engineering (IC2E) (pp. 59-69). IEEE. (Acceptance Rate 33.3%)

- **Cordingly, R.** and Lloyd, W., 2023, September. Enabling Serverless Sky Computing. In 2023 IEEE International Conference on Cloud Engineering (IC2E), PhD Symposium, (pp. 232-235). IEEE.
- Mo, D., **Cordingly, R.**, Chinn, D. and Lloyd, W., 2023, December. Addressing Serverless Computing Vendor Lock-In through Cloud Service Abstraction. In 2023 IEEE International Conference on Cloud Computing Technology and Science (CloudCom) (pp. 193-199). IEEE.
- Bhaia, N., Hung, L.H., **Cordingly, R.** and Lloyd, W., 2023, December. Understanding Container Isolation: An Investigation of Performance Implications of Container Runtimes. In Proceedings of the 9th International Workshop on Container Technologies and Container Clouds (pp. 7-12).
- Lambion, D., Schmitz, R., **Cordingly, R.**, Heydari, N. and Lloyd, W., 2022, July. Characterizing X86 and ARM Serverless Performance Variation: A Natural Language Processing Case Study. In Companion of the 2022 ACM/SPEC International Conference on Performance Engineering (pp. 69-75).
- **Cordingly, R.**, Xu, S. and Lloyd, W., 2022, September. Function Memory Optimization for Heterogeneous Serverless Platforms with CPU Time Accounting. In 2022 IEEE International Conference on Cloud Engineering (IC2E 2022), Sept 26-30, 2022.
- **Cordingly, R.**, Lloyd, W., FaaSSET: A Jupyter notebook to streamline every facet of serverless development, 2022 13th ACM/SPEC Inter Conference on Performance Engineering: 5th Workshop on Hot Topics in Cloud Computing Performance (HotCloudPerf-2022), Apr 9, 2022
- Lambion, D., Schmitz, R., **Cordingly, R.**, Heydari, N., Lloyd, W., Characterizing X86 and ARM Serverless Performance Variation: A Natural Language Processing Case Study, 2022 13th ACM/SPEC International Conference on Performance Engineering: 5th Workshop on Hot Topics in Cloud Computing Performance (HotCloudPerf-2022), Apr 9, 2022.
- Quinn, S., **Cordingly, R.** and Lloyd, W., 2021, December. Implications of Alternative Serverless Application Control Flow Methods. In Proceedings of the Seventh International Workshop on Serverless Computing (WoSC7) 2021 (pp. 17-22).
- **Cordingly, R.**, 2021. Serverless Performance Modeling with CPU Time Accounting and the Serverless Application Analytics Framework (Master's thesis, University of Washington).
- **Cordingly, R.**, Heydari, N., Yu, H., Hoang, V., Sadeghi, Z. and Lloyd, W., 2021, April. Enhancing observability of serverless computing with the serverless application analytics framework. Tutorial Paper. In Companion of the ACM/SPEC International Conference on Performance Engineering (pp. 161-164).
- **Cordingly, R.**, Yu, H., Hoang, V., Sadeghi, Z., Foster, D., Perez, D., Hatchett, R. and Lloyd, W., 2020, December. The serverless application analytics framework: Enabling design trade-off evaluation for serverless software. In Proceedings of the 2020 Sixth International Workshop on Serverless Computing (pp. 67-72).
- **Cordingly, R.**, Yu, H., Hoang, V., Perez, D., Foster, D., Sadeghi, Z., Hatchett, R. and Lloyd, W.J., 2020, August. Implications of programming language selection for serverless data processing pipelines. In 2020 IEEE International Conference on Dependable, Autonomic and Secure Computing, International Conference on Pervasive Intelligence and Computing, International Conference on Cloud and Big Data Computing, International

Conference on Cyber Science and Technology Congress (DASC/PiCom/CBDCom/CyberSciTech) (pp. 704-711). IEEE. Acceptance rate 40% (short paper).

- **Cordingly, R.**, Shu, W. and Lloyd, W.J., 2020, August. Predicting performance and cost of serverless computing functions with SAAF. In 2020 IEEE International Conference on Dependable, Autonomic and Secure Computing, International Conference on Pervasive Intelligence and Computing, International Conference on Cloud and Big Data Computing, International Conference on Cyber Science and Technology Congress (DASC/PiCom/CBDCom/CyberSciTech) (pp. 640-649). IEEE. Acceptance rate 27%.

LITERATURE REVIEWS

- Future Generation Computer Systems - The International Journal of eScience (2025)
- 15th ACM/SPEC International Conference on Performance Engineering (ICPE 2024)
- 12th IEEE International Conference on Cloud Engineering (IC2E 2024)
- 11th IEEE International Conference on Cloud Engineering (IC2E 2023)

HONORS AND AWARDS

- UWT Graduate School Conference Presentation Award (Nov 2025)
- Carwein-Andrews Distinguished Fellow (Dec 2024)
- ASUWT Conference and Training Fund (Nov 2023)
- UWT Graduate School Conference Presentation Award (Nov 2023)
- William W. Philip Endowed Fellowship (Jan 2023)
- Watchdog: 3D Printer Safety System - Won 2nd of 21 teams at 2019 Hack@UWT
- UWT Graduate Merit Scholarship from the School of Engineering & Technology (Dec 2018)
- 1st of 54 submissions in GameMaker Community Jam #8 and Best Concept (April 2018)
- UWT Undergraduate Merit Scholarship (Dec 2017)
- UWT Transfer Merit Student Achievement Scholarship (Dec 2016)
- Upsilon Pi Epsilon Honor Society
- Golden Key International Honor Society
- Phi Theta Kappa Honor Society

SKILLS

- **Cloud Platforms:** Amazon Web Services, Google Cloud, Microsoft Azure, IBM Cloud
- **Communication:** Slack, Zoom, Outlook
- **Presentation:** Microsoft Word, Powerpoint, Google Suite
- **Languages:** Python, Java, Node.js, C#, Bash, HTML5, CSS, JSON, LaTeX
- **Technologies:** Docker, Git, Virtualization, Jupyter, Django, Tensorflow
- **Game Engines:** Unity, GameMaker, Phaser, HTML5, PyGame
- **Operating Systems:** Windows, MacOS, Ubuntu, iOS, Android

PROJECTS

Function-as-a-Service Experiment Toolkit (FaaSSET)

- A python framework used to simplify the development and deployment process to serverless function-as-a-service platforms. Integrates with Jupyter notebooks to create a unified workspace and improve accessibility of the cloud. Was used in demos and tutorials. Google Colaboratory: <https://bit.ly/3LZA2se>

Serverless Application Analytics Framework (SAAF)

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- A function-as-a-service application profiling framework for Node.js, Python, and Java functions deployed to AWS, Google, IBM, and Azure FaaS platforms. Used to evaluate FaaS performance and observe infrastructure of serverless platforms.

<https://github.com/wlloydauw/SAAF>

Tutorial: <https://github.com/wlloydauw/SAAF/tree/master/tutorial>

FaaS Runner

- A client application used to create and automate experiments on function-as-a-service cloud platforms. <https://github.com/wlloydauw/SAAF/tree/master/test>

EasyRL Cloud

- Implemented cloud deployment of EasyRL, a framework used to train, test, and experiment with reinforcement learning models. <https://github.com/easyRL/easyRL-v0>

VIDEO GAME DESIGN

Decks of Dexterity

- Originally was an entry into the GameMaker Community Jam and won 1st place and Best Concept. A demo was released on GX Games and has accumulated over 1,000,000 plays. Steam: <https://decksofdexterity.com/steam> Demo: <https://decksofdexterity.com/gx>

Cloud Constructor

- An education video game designed to introduce students to basic cloud computing concepts. Published to code.org's Hour of Code for computer science week. <http://codedgames.com/games/cloud-constructor/>

HTML5 Mobile Games

- From 2015 to 2017 I published a variety of HTML5 Mobile games to online game portals including Static Overdrive, DRAW!!, Cube Fall, Poker Hunt, Jewel Ninja, and Plain's of Niri. <https://www.codedgames.com/>