

Jared Knofczynski

Undergraduate Student / Internet Data Science Researcher

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Education

Fall 2018 –
Winter 2022

University of Oregon, Clark Honors College

B.S. in Math and Computer Science, minor in Music Technology.
GPA: 4.05.

Research, Volunteer, and Work Experience

Spring 2021 –
Present

A Conversational Intelligence Approach to Network Management

Research conducted under the supervision of Ram Durairajan, Ph.D., and Walter Willinger, NIKSUN, at the University of Oregon.

- Designed and implemented a conversational intelligence agent capable of interacting with machine learning network management controllers to identify network anomalies through latency data.
- Built upon the ARISE framework (see “A Multi-Task Weak Supervision Framework” below) and the Lumi Chatbot natural language interface to support natural language network classification queries and provide contextualized query responses.
- This project resulted in a machine learning framework capable of classifying and comparing large quantities of network data that can be controlled entirely through natural language.

Fall
2020 – 2021

A Multi-Task Weak Supervision Framework for Internet Measurements

Research conducted under the supervision of Ram Durairajan, Ph.D., and Walter Willinger, NIKSUN, at the University of Oregon.

- Developed a multi-task machine learning framework to classify network latency data using weak supervision and compared this framework's efficacy compared to other single-task efforts.
- Built upon a previous noise classification framework and the weak supervision library Snorkel MeTaL to develop new labeling functions for anomaly classification and evaluated the efficacy of our novel approach.
- The result of this project was the ARISE framework, a multi-task classification system capable of training nearly 8x faster with over 40% higher accuracy compared to previous single-task efforts. Findings were presented at the University of Oregon 2021 Undergraduate Research Symposium and are currently in submission to ACM SIGMETRICS 2022.

Summer
2020 – 2021

Online STEAM Instructor

iD Tech Camps Online Private Lessons

Led virtual one-on-one and small group classes teaching basic programming, computer science, digital art, and cybersecurity principles to students ages 8-18.

Summer 2020

Combating COVID on College Campuses

Research conducted under the supervision of Lisa Mariott, OHSU, and Christof Teuscher, Ph.D., at Portland State University.

- Collaborated with a team of other undergraduate researchers to simulate COVID-19 pathogen transmission in higher education classroom settings.
- With transmission data gathered by researchers from the Oregon Health & Science University, we used an agent-based modeling framework to model the effects of a variety of factors including social distancing, cleaning frequency, and the efficacy of ventilation on pathogen transmission in classroom settings.
- Presented findings to faculty from universities across the U.S. to address the importance of establishing proper cleaning, ventilation, and distancing procedures in classroom settings to limit the spread of COVID-19. Findings published in Portland State University's online archive.

Fall 2019 –
Spring 2020

Learning Assistant, Class Encore Instructor, and Student Ambassador

University of Oregon, Department of Computer and Information Science

Held one-on-one office hours and small group study sessions to assist other undergraduate students in introductory computer science classes and introduce them to popular computer science concepts. Also met with prospective students to provide peer-level insight into the University's programs.

Research, Volunteer, and Work Experience (cont.)

Fall 2018 – Winter 2020	Front Desk Receptionist <i>University of Oregon, Erb Memorial Union Craft Center</i> Interfaced with the public and provided customer service to students and community members regarding art facilities present on and around campus.
Summer 2018	Volunteer Farmhand <i>Worldwide Opportunities on Organic Farms (WWOOF)</i> Traveled to Finland to volunteer on an organic farm with a team of other international volunteers.

Awards and Honors

Winter 2022	Departmental Honors in Math and Computer Science. I will graduate with Departmental Honors in Math and Computer Science from the Clark Honors College at the University of Oregon in Winter 2022.
Fall 2021	Phillip Seeley Scholarship – \$1,000 I was nominated for, and selected to receive, the Phillip Seeley Scholarship through the Department of Computer and Information Science. Nominees were evaluated based on the overall quality of their academic work, their commitment to learning, and their potential for further academic achievement.
Fall 2019, 2020, 2021	Ripple University Blockchain Research Initiative (UBRI) Scholarship – \$5,000 x3 I was consecutively selected as one of eight Computer Science students for the Ripple UBRI Scholarship in 2019, 2020, and 2021. Scholarships were awarded to students with a demonstrated interest in research related to cybersecurity and promise for outstanding academic success.
Fall 2021	Jean Wittemyer Memorial Scholarship – \$2,000 I was awarded the Jean Wittemyer Memorial Scholarship on the basis of my enrollment in the Clark Honors College and my demonstration of exceptional promise for academic achievement and a high degree of originality in my research.
Summer 2021	Vice President for Research and Innovation (VPRI) Undergraduate Fellowship – \$5,000 I was selected as one of fourteen undergraduate students to receive the VPRI Undergraduate Fellowship, a fellowship awarded to support students conducting research or creative scholarship on an innovative project full-time during the summer.
Fall 2020	Clark Honors College Scholarship – \$1,500 I was awarded this Clark Honors College Scholarship for outstanding achievement and promise for continued academic success.
Winter 2020	Louise Bishop Study Abroad Scholarship – \$2,000 Awarded to support students conducting research outside the United States. I was selected for this award on the basis of previous academic achievement and demonstrated potential for future success.

Publications

2021	Knofczynski, J., Durairajan, R., & Willinger, W. <i>A Multi-Task Weak Supervision Framework for Internet Measurements</i> (University of Oregon, 2021). <i>In submission to ACM SIGMETRICS 2022.</i> <i>Findings also presented at the University of Oregon 2021 Undergraduate Research Symposium.</i>
2020	Knofczynski, J., Killebrew Bruehl, A., Warner, B. & Shelton, R. <i>Combating COVID on College Campuses: The Impact of Structural Changes on Viral Transmissions</i> (Portland State University, 2020). <i>Findings presented at the Portland State University Summer 2020 REU Symposium.</i>

Additional research, scholarship, and reference information available upon request.