

# Jared Knofczynski

Ph.D. Student & Internet Data Science Researcher

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## Education

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Spring 2022 – Present	<b>University of Oregon, Department of Computer Science</b> Ph.D. Student studying Machine Learning for Networking Applications.
Fall 2018 – Winter 2022	<b>University of Oregon, Clark Honors College</b> Graduated <i>summa cum laude</i> with a B.S. in Math, Computer Science, and Music Technology from the University of Oregon with Departmental Honors. Undergraduate GPA: 4.06.

## Research and Work Experience

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Spring 2022 – Present	<b>A Conversational Intelligence Approach to Network Penetration Testing</b> <i>Research conducted under the supervision of Doctors Ram Durairajan (University of Oregon) and Walter Willinger (NIKSUN) at the University of Oregon.</i> <ul style="list-style-type: none"><li>In the process of designing and implementing a machine learning conversational intelligence agent to facilitate the security of wireless networks.</li><li>Building upon the ARISE framework (see “A Multi-Task Weak Supervision Framework” below) and the Lumi Chatbot natural language interface to support natural language queries, we extend these works to include penetration testing capabilities and address prior shortcomings in this space.</li><li>This project will result in a machine learning framework capable of assisting network operators in identifying security vulnerabilities that can be controlled entirely through natural language.</li></ul>
Fall 2020 – Winter 2022	<b>A Multi-Task Weak Supervision Framework for Network Measurements</b> <i>Research conducted under the supervision of Doctors Ram Durairajan (University of Oregon) and Walter Willinger (NIKSUN) at the University of Oregon. To be published in IEEE JSAC in July 2022.</i> <ul style="list-style-type: none"><li>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.</li><li>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.</li><li>The result of this project was ARISE, a multi-task classification framework capable of training nearly 8x faster with over 40% higher accuracy compared to prior state-of-the-art single-task efforts. Findings were presented at the University of Oregon Undergraduate Research Symposium and will be published in IEEE Journal on Selected Areas in Communications in July 2022.</li></ul>
Summer 2020 – 2021	<b>Virtual STEM &amp; Art Instructor</b> <i>iD Tech Online Private Lessons</i> Led virtual one-on-one and small group classes teaching basic programming, computer science, digital art, and cybersecurity principles to students between the ages of 12 and 18.
Summer 2020	<b>Combating COVID on College Campuses</b> <i>Research conducted under the supervision of Doctors Lisa Mariott (OHSU) and Christof Teuscher (Teuscher Labs) at Portland State University.</i> <ul style="list-style-type: none"><li>Collaborated with a team of other undergraduate researchers to simulate COVID-19 pathogen transmission in higher education classroom settings.</li><li>With transmission data gathered by researchers from the Oregon Health &amp; 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.</li><li>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.</li></ul>

## Research and Work Experience (cont.)

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Fall 2019 – Spring 2020	<b>Computer Science Learning Assistant &amp; Class Encore Instructor</b> <i>University of Oregon, Department of Computer and Information Science</i> 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.
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## Awards and Honors

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Fall 2022	<b>Phillip W. and Judy A. Seeley Graduate Fellowship – \$6,000</b> I was selected to receive the Phillip W. and Judy A. Seeley Graduate Fellowship to support outstanding graduate students in the Department of Computer and Information Science.
Winter 2022	<b>Departmental Honors in Math and Computer Science</b> I graduated <i>summa cum laude</i> with Departmental Honors in Math and Computer Science from the Clark Honors College at the University of Oregon in Winter 2022.
Fall 2019, 2020, 2021	<b>Ripple University Blockchain Research Initiative Scholarship – \$5,000 x3</b> I was selected to receive the Ripple University Blockchain Research Initiative 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	<b>Phillip Seeley Scholarship – \$1,000</b> 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 2021	<b>Jean Wittemyer Memorial Scholarship – \$2,000</b> 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	<b>Vice President for Research and Innovation (VPRI) Undergraduate Fellowship – \$5,000</b> 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	<b>Clark Honors College Scholarship – \$1,500</b> I was awarded this Clark Honors College Scholarship for outstanding achievement and promise for continued academic success.
Winter 2020	<b>Louise Bishop Study Abroad Scholarship – \$2,000</b> 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

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2022	<b>J. Knofczynski</b> , R. Durairajan, and W. Willinger, “ARISE: A Multi-Task Weak Supervision Framework for Network Measurements,” in <i>IEEE Journal on Selected Areas in Communications</i> , vol. 40, no. 7, July 2022.
2020	<b>J. Knofczynski</b> , A. Killebrew Bruehl, B. Warner, and R. Shelton, “Combating COVID on College Campuses: The Impact of Structural Changes on Viral Transmissions,” <i>Portland State University</i> , August 2020.

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