September 9th 2024

Dear Dr. Poisson, Members of the Promotion Committee and Dean Williams:

Please accept this letter for consideration of my promotion to the rank of Full Professor in the Information and Computer Sciences (ICS) Department at the University of Hawai'i at Manoa. I joined University of Hawaii at Manoa in 2023, prior to that I was at Rochester Institute of Technology (RIT) where I served as Kodak Endowed Chair of Software engineering and Director of Research at the ESL Global Cybersecurity. Per UH Policy and given the prior approval of the dean Williams and OVPAE for the recognition of work performed at another higher education institution, I submit my official request for promotion with this letter. First, I will introduce the content of my dossier. Then, I will briefly outline my contributions and accomplishments in the areas of research, teaching, services and leadership. Additional information supporting my promotion can be found within my narrative statements, and notable indicators on my CV, and other included materials.

The synopsis of my academic career post-tenure includes leading various projects of national importance in the areas of trustworthy software, cybersecurity, AI, and scientific software development. I have worked with several agencies including the U.S. Department of Homeland Security (DHS), National Science Foundation (NSF), U.S. Air Force, Defense Advanced Research Projects Agency (DARPA), Cybersecurity and Infrastructure Security Agency (CISA), National Institute of Standards and Technology, National Institutes of Health (NIH), Department of Transportation, MITRE Co, and etc. These R&D efforts have resulted in over $20M in funding where I served in majority as the sole principal investigator. Since joining the ICS department at the University of Hawai'i, I have directed significant efforts in research, services, and teaching. UH policy for promotion to full Professor requires that the candidate must be among leaders in the research and scholarly discipline. Here are examples of how my academic work has achieved these expectations:

- I supported the implementation of **President Biden's Executive Order 14028** (Improving the Nation's Cybersecurity). Additionally, I have actively engaged with the Office of the National Cyber Director at The White House shaping the National Cybersecurity Strategy, and in particular the focus on workforce development and R&D. Through these nationwide services, I have also engaged the University of Hawai'i as a recipient of sole sourced R&D funding from the USG which provided an opportunity for early research & policy impact work to several UH junior faculty. Since joining UH, I have given several academic and industrial keynotes and speeches (*See CV*) including a recent talk for the members of congress and public sector at the Hack the Capitol event. I have also been invited to serve as a technical panel on Software Security at MITRE Co.
- I actively publish in top tier software engineering venues, including **ICSE**, **FSE**, **ASE**, and **IEEE TSE**. I currently mentor 3 PhD students, one postdoc, 2 full time staff and numerous undergraduate students who are working on externally funded research projects.
- My research has had significant industrial outreach and impact resulting in software products that are in use within the U.S. Government and by the private sector. Instances of such impacts include **(1) technology transitions:** where software vulnerability analytical tools developed in my lab are being deployed into facilities and systems of **Cybersecurity and Infrastructure Security Agency (CISA), (2) industrial impacts:** My work in the area of architecture based approach to cybersecurity was selected by the **U.S. Department of Homeland Security** to serve as an industrial guideline for cybersecurity corporations and is disseminated by **MITRE Co**. (https://cwe.mitre.org/data/definitions/1008.html), **(3) industrial education:** where my lab's YouTube channel (**LearnSBOM**) resulted in **458 subscribers** and near **60K views** from practitioners and the members of the software security industry.

- Services to UH and broader scientific communities are very important to me and I feel it is too often overlooked. My service to the software engineering community includes serving as an Associate Editor for two prestigious software engineering journals: IEEE Transaction in Software Engineering, and Empirical Software Engineering Journal. Additionally, I actively serve as program committee member, organizer, panelist and speaker for various scientific events. My services to the university include a variety of activities that are expected of a faculty at the rank of full professor. These include not only serving on individual committees and as hiring chair (2023, 2024) but also taking more leadership roles. In 2023, I organized the first system wide cybersecurity initiation to bring faculty, students, and decision makers across UH system together to explore collaborations and brainstorm a shared cybersecurity initiation. I served on the committee for "Imperative Four: Diversify Hawai'i's Economy through UH Research and Innovation". Through this service, I developed the full report for *Data Science & Global Cybersecurity Strategic Plan*. To expand on this effort, my institutional service also included the formation of Hawai'i CyberLab, an immersive laboratory focusing on Cybersecurity and AI workforce development across the University of Hawai'i System. CyberLab is co-managed by the University of Hawai'i at Manoa and at West Oahu. Additionally, I worked with the university leadership and state officials on budget appropriation in the areas of Cyber.
- In terms of classroom effort: I redesigned the Advanced Software Engineering course and made it a **Practicum Model** where students directly worked with an external project sponsor to design, develop and deliver real software systems. This course was especially developed to address the current technical skill gaps among ICS students. Additionally, I co-lead the capstone/internship course. This course aims to establish a direct collaboration with local industry and DOD. I volunteered my time to mentor GrayHat student club to better support them, address their needs and better prepare them for national cybersecurity competitions.

Taken together, my materials represent a commitment to my career as an international scholar. Not only do I consider the work I do with my colleagues at UH and beyond a "good" work, but also important. I use my position to support students and establish bridges between them and their future dreams. I strive to find ways to interconnect my teaching, research, services and leadership to create a body of work and environment that can support students, better train them and enable them to be the next generation of software engineers. I am strongly in favor of a diverse community that samples broadly from the general population. With that belief, I have dedicated my time, effort and resources to providing equality of research opportunity for everyone including minorities and disadvantaged individuals. The most satisfying part of my career lies in establishing, managing, and growing a productive, diverse and inclusive research group at UH. I greatly appreciate the opportunities I have been afforded at UH and I look forward to spending many more years with the faculty and staff of the ICS department.

I hope the committee finds my promotion materials demonstrate my commitment and merit of the promotion to Full Professorship. I thank you in advance for the consideration of my letter, dossier, and supporting materials. I am happy to provide further evidence or answer any questions, if necessary.

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