

## Amazon - Virginia Tech Initiative for Efficient and Robust Machine Learning Call for Doctoral Student Fellowships

The [Amazon-Virginia Tech Initiative for Efficient and Robust Machine Learning](#) invites nominations for doctoral student fellows with anticipated support beginning Fall Semester 2023. Fellowships will be awarded to Virginia Tech doctoral students that includes one academic year of funding, tuition, travel support to conferences, and an invitation to interview for an Amazon internship intended to provide students a greater understanding of industry and use-inspired research. Students selected for fellowships will be known as **Amazon Fellows**. The fellowship enables students during the academic year to pursue independent research projects in the areas of machine learning and artificial intelligence and the optional paid summer internship at Amazon will enable them to gain valuable industry insight and experience through direct engagement with Amazon researchers.

Nominations for fellowships should be made by Virginia Tech faculty members. Students cannot submit nominations on behalf of their advisor. Students must be enrolled in a PhD program at Virginia Tech, be in good standing, and should have exhibited outstanding academic performance to be eligible for a fellowship. Additionally, students must be in the second, third, or fourth year of their Ph.D. studies and pursuing doctoral-level research in machine learning, data science, AI, and/or NLP.

### Topics of interest for this year include:

Thrust	Theme	Topic Details
Algorithmic Research	Federated Learning	Models, algorithms, applications
	Robust Machine Learning	Updatable ML; Online incremental learning: algorithms, online performance and its evaluation and robustness; Self-supervised learning as applied to detection tasks; ML Risk Assessment: Quantifying and characterizing risks due to stability, drift, uncertainty, interpretability, lack of recourse, and adversaries, metrics to measure robustness and evaluating robustness of ML models
NLP and Conversational AI	Efficient and Robust Conversational AI	Efficient and Robust open-domain conversational AI, Multimodal conversational AI, Conversational Embodied Robotics AI, Automated learning from human feedback in dialog systems
	Responsible AI	Information veracity: approaches to measure information truthfulness and use in applications like fact verification or detecting hallucination in conversational language models
Systems Research	New Cloud Programming Abstractions	New systems programming abstractions for cloud ML and edge ML

Improving Memory Footprints	Improving memory footprints of ML models for use in resource- constrained environments
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**While the above topics are particularly of interest, highly meritorious nominations in other areas of ML and AI will also be considered.**

**Each selected Amazon fellow will receive**

- \$24K stipend (academic year)
- Tuition will be covered
- Invitation to interview for an Amazon internship
- Travel support of \$1K to attend conferences in student's area of research

**Fellowship Timeline**

- March 1, 2023 (5pm EDT): Fellowship Nominations/Applications Due
- June 1, 2023: Fellowship Decisions Announced
- Aug 10, 2023: Fellowships begin in the Fall Semester
- July 31, 2024: Fellows must submit a brief report of their past year activities

**Nomination materials**

All nomination materials should be submitted in PDF format, single-spaced, 12pt font, one-inch margins by the Virginia Tech faculty member nominating the student for the fellowship.

Nomination should include:

- Student's CV (2 pages maximum), with education, work experience, awards, publications, including link to his/her webpage;
- Student's personal statement (2 page maximum) including a description of their background, research so far, and further work that the fellowship will enable them to pursue
- Two letters of recommendation from Virginia Tech faculty members. One of these letters must be from the student's doctoral advisor.

Proposal submissions and any questions about proposal submissions should be addressed to Wanawsha Shalaby, Manager of Operations at the Sanghani Center, wanah92@vt.edu.

**Review Criteria**

A joint VT-Amazon advisory board will review applications based upon

- Statement
- Research experience/publication record