Nikitha Rao

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Google Scholar

Education

- **Carnegie Mellon University**, Pittsburgh, USA *August 2021*
  Ph.D. in Software Engineering.
  Advisor: Prof. Vincent Hellendoorn
  Research Interests: Machine Learning for Software Engineering.
- **PES University**, Bangalore, India *2015 - 2019*
  B.Tech in Computer Science and Engineering with a specialization in Data Science.
  Advisor: Dr. Gowri Srinivasa | Cumulative GPA: 9.48/10.0

Publications

- **SoftNER: Mining Knowledge Graphs From Cloud Incidents** [arXiv '21]
  Manish Shetty, Chetan Bansal, Sumit Kumar, **Nikitha Rao**, and Nachiappan Nagappan
  Under review, 2021. (15 pages)

- **Search4Code: Code Search Intent Classification Using Weak Supervision** [MSR '21]
  Nikitha Rao, Chetan Bansal, and Joe Guan
  Mining Software Repositories, 2021. (5 pages)

- **Neural Knowledge Extraction from Cloud Service Incidents** [ICSE - SEIP '21]
  Manish Shetty, Chetan Bansal, Sumit Kumar, **Nikitha Rao**, Nachiappan Nagappan, and Thomas Zimmermann
  International Conference on Software Engineering, 2021. (12 pages)
  🏆 **Nominated for the IEEE Software Distinguished Paper Award (5/41)**
  🏆 **Featured on VentureBeat:** Microsoft's SoftNER AI uses unsupervised learning to help triage cloud service outages.
  🏆 **Featured on Techzine:** Microsoft's SoftNER AI evaluates disruptions in cloud services

- **Handling Class Imbalance with POISE: pAUC Optimization in Supervised Experiments** [MLADS '20]
  Nikitha Rao, and Sreangsu Acharyya
  Preprint of full paper available. (9 pages)
  🏆 **Best Short Paper Award** at MLADS-SYNAPSE, 2020.
  Microsoft internal Conference on Machine Learning and Data Science for Asia-Pacific region
  [Acceptance Rate ≈ **8%**]

- **Analyzing Web Search Behavior for Software Engineering Tasks** [IEEE BigData '20]
  Nikitha Rao, Chetan Bansal, Thomas Zimmermann, Ahmed Hassan Awadallah, and Nachiappan Nagappan
  IEEE International Conference on Big Data, 2020. (10 pages)
  [Acceptance Rate ≈ **15.5%**]

- **Product Insights: Analyzing Product Intents in Web Search** [CIKM '20]
  Nikitha Rao, Chetan Bansal, Subhabrata Mukherjee, and Chandra Maddila
  International Conference on Information and Knowledge Management, 2020. (4 pages)
  [Acceptance Rate ≈ **26%**]

- **Studying Ransomware Attacks Using Web Search Logs** [SIGIR '20]
  Chetan Bansal, Pantazis Deligiannis, Chandra Maddila, and **Nikitha Rao** *(alphabetical order)*
  International Conference on Research and Development in Information Retrieval, 2020. (4 pages)
  [Acceptance Rate ≈ **30%**]

Patents

- **Identification of Content Gaps based on Relative User-Selection Rates between Multiple Discrete Content Sources** filed with the USPTO. *October 16, 2020*
  Co-inventors: Chetan Bansal, Junia George, Casey Gossard, Dung Nguyen, Dave Ludwig, and Curtis Anderson.
- **ExtraQuery Context-Aided Search Intent Detection** filed with the USPTO. *October 9, 2020*
  Co-inventors: Chetan Bansal, Joe Guan, Mark Wilson-Thomas, Nachiappan Nagappan, and Thomas Zimmermann.
- **Automatic Recognition of Entities Related to Cloud Incidents** filed with the USPTO. *June 19, 2020*
  Co-inventors: Manish Shetty, Chetan Bansal, Sumit Kumar, Nachiappan Nagappan, and Thomas Zimmermann.

Awards and Honors

- **Google Collab Ph.D. Fellowship**, awarded $100,000 in total. *2021*
- **Graduate Dean's Scholar Award**, Computer Science, UCLA *(declined in favor of CMU).* *2021*
- **Computer Science Excellence Fellowship**, Computer Science, UIUC *(declined in favor of CMU).* *2021*
- **Dean's Distinguished Graduate Fellowship**, Computer Science, UC Davis *(declined in favor of CMU).* *2021*
- **Chair's Award**, Informatics, UC Irvine *(declined in favor of CMU).* *2021*
- **Best Short Paper Award** at MLADS-SYNAPSE. *2020*
- **Best Outgoing Student Award** for class of 2019 (360 students), Computer Science, PES University. *2019*
- Five time recipient of the **CNR Rao Scholarship**, Computer Science, PES University. *2016 - 2019*

Work Experience

- **Microsoft Research, India** - *Research Fellow* *July, 2019 - July 2021*
  Advisors: Chetan Bansal, Dr. Subho Mukherjee, Dr. Nachi Nagappan, and Dr. Tom Zimmermann
  Project Domains: Machine Learning for Software Engineering, Data Science, and Web Search
  Additional Responsibilities: Research Fellow representative for the Diversity and Inclusion committee.
- **Microsoft Research, India** - *Research Intern* *January - June, 2019*
  Advisor: Dr. Sreangsu Acharyya
  Project Domain: Data Science
- **Carnegie Mellon University, Pittsburgh** - *Research Intern* *Summer 2018*
  Advisor: Prof. Shawn Blanton
  Project Domain: Machine Learning
- **Indian Institute of Science, India** - *Summer School Program* *July, 2017*
  Was among the youngest students selected for the 5th Summer School Program conducted by the Computer Science and Automation (CSA) Department.

Ongoing Projects

- **Software Testing Using Neural Program Analysis** *September, 2021 - Present*
  Collaborators: Vincent Hellendoorn (CMU), Charles Sutton (Google Brain)
  Testing is an integral part of software development, yet it has received far less attention than bug repair in general programming. Our goal is to augment software testing with neural code intelligence through models that capture the conditional distribution of tests given their tested functionality, coupled with learning from conventional, coverage-based analyses.

- **Analyzing the Usefulness of Code Comments in Code** *September, 2021 - Present*
  Collaborators: Vincent Hellendoorn (CMU), Martin Hirzel, and Jason Tsay (IBM Research)
  Developers rely on code comments to better understand the functionality of a code snippet, something that is often neglected by language models. We aim to study if code comments are indeed useful, and if they can be leveraged to help guide developers during code review.