

Alagappan Ramanathan

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Research Interests

Broadly interested in Networked Systems with a recent focus on Wide Area Network, Network Measurements, Internet Topology, and Resilience Analysis.

Education

University of California, Irvine Sept 2021 – Present
PhD in Computer Science (GPA: 4.00 / 4.00) Irvine, USA

National Institute of Technology Calicut Jul 2014 – Apr 2018
B Tech in Electronics and Communication (GPA: 9.44 / 10.00) Calicut, India

Publications

Nautilus: A Framework for Cross-Layer Cartography of Submarine Cables and IP Links Jun 2024
To Appear in the Proceedings of ACM SIGMETRICS'24 ([Paper](#) [Code](#) [Blog](#))
Alagappan Ramanathan, Sangeetha Abdu Jyothi

Xaminer: An Internet Cross-Layer Resilience Analysis Tool Jun 2024
To Appear in the Proceedings of ACM SIGMETRICS'24 ([Paper](#))
Alagappan Ramanathan, Rishika Sankaran, Sangeetha Abdu Jyothi

Research Experience

NetSAIL, University of California Irvine Sep 2021 – Present
Advisor: Sangeetha Abdu Jyothi
Internet Cross-Layer Topology and Resilience Analysis

- Developed a framework to generate a cross-layer mapping between IP links and submarine cables relying on publicly available measurement data.
- Proposed mechanisms to establish consistent relationships between ASNs, cable owners, and IP geolocation.
- Developed a tool to perform resilience analysis for multiple disasters and events at varied physical and network layer granularities.
- Engaged in enhancing IP geolocations, generating simplified maps of Internet infrastructure, and exploring various avenues for improvement.

National Institute of Technology Calicut Aug 2017 – Mar 2018
Advisor: Praveen Sankaran
Multiple Sensor-based Detection and Classification of Road Obstacles

- Utilized camera and LIDAR data to detect objects, leading to the creation of a 3D occlusion detection algorithm.
- Developed a multi-modal fusion model to detect various objects on the road.

Industry Experience

Cisco Aug 2018 – Aug 2021
Software Engineer Chennai, India

- Worked as a developer in the InterNetworking OS (IOS-XR) team.
- Involved with the development and maintenance of logging and tracing infrastructures.
- Trained machine learning models to predict the provisioning requirements for service providers.

Microsoft May 2017 – Jul 2017
Tech Intern Bangalore, India

- Developed a road traffic engineering solution based on Internet of Things and machine learning.

Fellowships and Awards

- Internet Society Pulse Research Fellowship 2023
- Among the 3 fellows selected worldwide
 - Presented my research at the [Internet Society Pulse Research Webinar](#)
- Dean's Award for Outstanding Research Potential 2021
- Awarded by the School of Computer Science, University of California Irvine
- Competitions 2016 - 2020
- Finalist in the NeXT India Innovation Challenge (Cisco) in 2019 and 2020.
 - Winner of the IoT Challenge 2016, a national-level IoT competition held by IIT Bombay.

Professional Service

- Reviewer - IEEE/ACM Transactions on Networking 2023

Technical Skills

Languages: Python, C, C++, Bash

Concepts: Network Measurements, Networking, Distributed Systems