# 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)
*Alagappan Ramanathan, Sangeetha Abdu Jyothi*

**Xaminer: An Internet Cross-Layer Resilience Analysis Tool** Jun 2024
*To Appear in the Proceedings of ACM SIGMETRICS'24* ( Preprint )
*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