Neehar Peri

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Education

Ph.D in Robotics, Carnegie Mellon University August 2021 - Present

B.S. in Computer Engineering, University of Maryland - College Park August 2017 - May 2021
QUEST Honors Program

Conference Publications

- Forecasting from LiDAR via Future Object Detection — Under Review
  ***N Peri**, J Luieten, M Li, A Osep, L Leal-Taixe, D Ramanan*
- 3D-DAMO: Towards 3D Detection of All Movable Objects — Under Review
  ***N Peri**, A Dave, S Kong, D Ramanan*
- A Synthesis-Based Approach for Thermal-to-Visible Face Verification — FG 2021†
  ***N Peri**, J Gleason, CD Castillo, T Bourlai, VM Patel, R Chellappa*
- PreferenceNet: Encoding Human Preferences in Auction Design with Deep Learning — NeurIPS 2021
  N Peri, MJ Curry*, S Dooley, JP Dickerson*
- Deep k-NN Defense against Clean-label Data Poisoning Attacks — ECCVW 2020
  N Peri, N Gupta*, WR Huang*, L Fowl, C Zhu, S Feizi, T Goldstein, JP Dickerson*
- The Devil is in the Details: Self-Supervised Attention for Vehicle Re-ID — ECCV 2020
  P Khorramshahi, **N Peri***, JC Chen, R Chellappa*
- Towards Real-Time Systems for Vehicle Re-ID, Multi-Camera Tracking, and Anomaly Detection — CVPRW 2020†
  N Peri, P Khorramshahi*, SS Rambhatla*, V Shenoy, S Rawat, JC Chen, R Chellappa*
- Attention Driven Vehicle Re-ID and Unsupervised Anomaly Detection for Traffic Understanding — CVPRW 2019†
  *P Khorramshahi, **N Peri**, A Kumar, A Shah, R Chellappa*
- A Dual Path Model with Adaptive Attention for Vehicle Re-ID — ICCV 2019††
  *P Khorramshahi, A Kumar, **N Peri**, SS Rambhatla, JC Chen, R Chellappa*

*Equal Contribution
†Selected for Spotlight Presentation
††Selected for Oral Presentation

Academic Experience

Carnegie Mellon University, Pittsburgh, PA, *Robotics Institute* — *Apr 2020 – Present*
- Leading research on 3D object detection, tracking, and forecasting for autonomous driving applications
- Advisor: Deva Ramanan

University of Maryland, College Park, MD, *UMIACS* — *May 2018 – May 2021*
- Conducted research in traffic analytics for unsupervised anomaly detection and discriminative representation learning for vehicle re-identification
- Led research in defending against clean-label adversarial poisoning attacks
- Established novel method for encoding human preferences in revenue maximizing auction design
- Advisors: Rama Chellappa & John P. Dickerson

Industry Experience

MUKH Technologies, College Park, MD, *Research Intern* — *Aug 2020 – Present*
- Led research on improving thermal-to-visible face synthesis for zero-shot identification
- Built robust face verification pipelines for multi-spectral data streams

Argo AI, Pittsburgh, PA, *Research Intern* — *May 2021 – August 2021*
- Developed end-to-end 3D object detection and forecasting pipeline from LiDAR point clouds
- Implemented novel metrics that jointly evaluate detection and forecasting accuracy

Bank of America, Charlotte, NC, *Conversational Commerce Technology Intern* — *Jun 2019 – Aug 2019*
- Developed novel deep learning pipeline to validate quality of utterance-intent pairs in chatbot conversations using PyTorch, AllenNLP, and NLTK
- Deployed RESTful Active Learning API to introduce targeted learning feedback loop and improve intent classification model performance

Teaching Experience

ENEE 244, University of Maryland, ECE Department, *Undergraduate Teaching Fellow* *Jan 2019 – May 2019*

- Led Introduction to Digital Logic recitation for a discussion section of 15 students
- Received highest marks on metrics of preparedness, respect for students, and teaching effectiveness from all students

Awards

Name	**Institution**	**Distinction**	**Year**
Maryland Undergraduate Researcher of the Year	UMD	University	2021
Sujan Guha Memorial Best Senior Thesis Award	UMD	Department	2021
CRA Outstanding Undergraduate Researcher (Honorable Mention)	UMD	National	2021

Mentorship

Name	**Institution**	**Year(s)**	**Details**
Maggie Cai	CMU	2021	Mentor for undergraduates from underrepresented groups interested in ML research
Aastha Senjalia, Andrew Vetter, Benjamin Namovicz, Cheyenne Montgomery, Ferzam Mohammad, Matthew Weinberg, Nicholas Revill	UMD	2021	Project champion for CMSC435 software engineering capstone to build a unified rendering platform for autonomous vehicle data

Service

Conference Reviewer: NeurIPS 2021, CVPR 2022
Journal Reviewer: IJCV