ZHAOYUAN FANG

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EDUCATION

University of Notre Dame *Aug. 2016 - May 2020 (expected)*
B.S. in Electrical Engineering and Mathematics, GPA: 3.984 / 4.0
Deans List, All semesters, Fall 2016 Spring 2019
Sorin Scholars Program, Spring 2017 Present
GRE: 336 (verbal 166 + quantitative 170) + 4.5; TOEFL: 119

RESEARCH EXPERIENCE

Carnegie Mellon University RPAD Lab Pittsburgh, PA
Advisor: Dr. David Held, Dr. Hang Zhao *May 2019 - Aug. 2019*

- Evaluated techniques for generic 6-DoF object pose estimation for completely unseen objects in the wild; developed and implemented a modular data loader for popular object pose estimation datasets.
- Reformulated the audio-visual alignment problem and proposed an end-to-end trainable unifying solution for multiple tasks including dance-music alignment and speech-lip synchronization.

University of Notre Dame Computer Vision Research Lab Notre Dame, IN
Advisor: Dr. Adam Czajka, Dr. Kevin Bowyer *Jan. 2018 - Present*

- Designed a robust iris presentation attack detection method; employed photometric stereo based on the difference of reconstructed 3D normal vectors of irises with and without textured contact lens.
- Constructed computer vision based biometrics authentication systems; implemented automated multi-illumination iris image collection, presentation attack detection model, and interactive user interface.

University of Notre Dame iCeNSA Notre Dame, IN
Advisor: Dr. Nitesh Chawla *Jan. 2019 - Present*

- Systematically investigated the possibility of using network representation learning for the imbalance classification problem; studied the impact of different graph constructions, random-walk schemes and sampling methods on the separation of majority and minority embeddings.

Argonne National Laboratory Argonne, IL
Advisor: Dr. Chen Chen, Dr. Dongbo Zhao *May 2018 - Aug 2018*

- Designed a novel load identification method for non-intrusive load monitoring (NILM) for better energy conservation; formulated a new state transition classifier that boosts classification performance
- Collaborated in a load modeling project to explore new techniques for demand-side energy management

University of Notre Dame DISCOVER Lab Notre Dame, IN
Advisor: Dr. Hai Lin *Aug. 2018 - May 2019*

- Built a driver-assistance system testbed for prospective human-robot collaboration application.
- Extended the probabilistic model learning algorithm to complex real-world driving scenarios;

University of Notre Dame Nanophotonics Lab Notre Dame, IN
Advisor: Dr. Anthony Hoffman *May 2017 - May 2018*

- Conducted interdisciplinary research across materials and optical science to establish the foundation for new optoelectronic device; investigated fundamentally new ways to engineer the optical properties of candidate phononic materials.

PUBLICATIONS

Jianren Wang, Xinshuo Weng, **Zhaoyuan Fang**, David Held, Kris Kitani, Nicholas Rhinehart. Scene Point Cloud Forecasting. Submitted to IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2020

Zhaoyuan Fang*, Jianren Wang*, Hang Zhao. AlignNet: A Unifying Approach to Audio-Visual Alignment. Submitted to IEEE Winter Conf. on Applications of Computer Vision (WACV) 2020

Zhaoyuan Fang, Dongbo Zhao, Chen Chen, Yang Li, Yuting Tian. Non-Intrusive Appliance Identification with Appliance-Specific Networks. IEEE Industry Applications Society (IAS) Annual Meeting, Baltimore, Maryland, 2019

Adam Czajka, **Zhaoyuan Fang**, Kevin W. Bowyer. Iris Presentation Attack Detection Based on Photometric Stereo Features. IEEE Winter Conf. on Applications of Computer Vision (WACV), Waikoloa Village, Hawaii, 2019, **U.S. Patent pending**

Leland Nordin, Owen Dominguez, C. M. Roberts, Will Streyer, Kaijun Feng, **Zhaoyuan Fang**, Viktor A. Podolskiy, Anthony J. Hoffman, and Daniel Wasserman. Mid-infrared Epsilon-near-zero Modes in Ultra-thin Phononic Films. Applied Physics Letters 111:9, September 2017

GRANTS AND AWARDS

Center of Career Development Pucillo Family Fund $3,500	*2019*
Best use of external data award, ASA DataFest 2019 at Notre Dame $1,000	*2019*
Center for Undergraduate Scholarly Engagement (CUSE) Conference Travel Grant $1,000	*2019*
Tau Beta Pi (TBP) Engineering Honor Society	*2018*
Eta Kappa Nu (HKN) Engineering Honor Society	*2018*
Top 15%, ACM-ICPC East Central North America Regional Contest	*2018*
Top 20%, ACM-ICPC East Central North America Regional Contest	*2017*
Center for Nano Science and Technology Undergraduate Research Fellowship $5,200	*2017*

SERVICES

Reviewer for IEEE Power Engineering Letters *Nov. 2018 - Present*
Reviewed paper manuscripts submitted to IEEE Power Engineering Letters (PEL) related to load profile research.

Reviewer for PeerJ Computer Science *Dec. 2018 - Present*
Reviewed paper manuscripts submitted to PeerJ Computer Science related to the field of Biometrics and Iris Recognition

SKILLS

Prgramming skills: Python, C++, MATLAB, ROS, LaTeX

Version Control: Git

Framework / Libraries: PyTorch, OpenCV, NetworkX

Languages: Engligh (fluent), Chinese (native)