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Yuchao Jiang

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Google Scholar

Objective: Research Scientist/Laser Designer/Testing Engineer

Skills

- Programming languages: Python, Matlab, Labview, C++
- Semiconductor laser modeling, characterization, physical interpretation and trouble shooting
- Design of novel quantum structures and optimization of optical waveguide
- High-performance interband cascade (IC) lasers based on GaSb and InAs
- Weather prediction using machine learning
- Sensor fusion of radar & lidar using Kalman/particle filter for autonomous driving

Industry Experience

Data Scientist, Weathernews American Inc., Norman, OK 11/2017 - now

- Wrote Python and C++ codes to process satellite data (NetCDF, wgri2 and binary formats) for practical use
- Developed cloud mask algorithm using spectrum property of each satellite band. This work is used in the data assimilation, essential for improving the accuracy of Numerical Weather Prediction (NWP) models
- Developed machine learning models to postprocess NWP data for aviation forecast, achieved F1 score comparable to human forecaster. This work significantly improved the productivity of aviation forecast.
- Gave 15-min oral at 18th Conf. on AI and its Applications to the Environmental Sciences, Phoenix, Jan 2019

Academy Experience

Research Assistant, University of Oklahoma, Norman, OK 08/2010 – 05/2016

- Significantly improved the performance of IC lasers, achieving milestones of CW room temperature operation
- Built numerical models to design waveguide and quantum structures of semiconductor lasers
- Benchmarked the laser testing process and automated the data collection using Labview
- Reviewer of APL/JAP/IEEE, hold 2 patents on laser technologies, gave 2 oral presentations at CLEO
- Selected Publications (total publications: 15, total citations: 200+):

1. **Y. Jiang**, *et al.*, "Type-I interband cascade lasers near 3.2 μm", Appl. Phys. Lett. (2015).
2. L. Li, **Y. Jiang**, *et al.*, "Low-threshold InAs-based interband cascade lasers operating at high temperatures", Appl. Phys. Lett. (2015). *Reported as "research highlights" in Nat Photon (2015).*
3. **Y. Jiang**, *et al.*, "Electrically widely tunable interband cascade lasers," J. of Appl. Phys.(2014).
4. **Y. Jiang**, *et al.*, "InAs-based single-mode distributed feedback interband cascade lasers", IEEE JQE (2015).

Education

Ph.D., Electrical and Computer Engineering, University of Oklahoma, Norman, OK 05/2016
Dissertation: High-performance InAs-based interband cascade lasers [download]

M.S. in Material Physics and Chemistry, Chinese Academy of Sciences, Beijing, China 07/2010
Thesis: Surface-emitting quantum cascade lasers

B.S. in Applied Physics, Beijing University of Posts and Telecomm., Beijing, China 07/2007