LETIAN WANG

1600 E 3rd Ave, Apt 2016, San Mateo, CA, 94401 | ltwang@berkeley.edu | 510-816-7299 | www.letianwang.me

SUMMARY

- Applying for **Research Scientist** and **Hardware Engineer** positions in optical sensing and metrology
- Advanced proficiency in development of **optical sensing hardware** and **scientific simulation software**
- Proven record to deliver **industry-first** ultrafast sensing solutions
- Owned **core innovations** in laser processing and active photonics

SKILLS

- **Optical instrumentation** of both free-space and fiber optics for ultrafast and microscale optical diagnostics (5 year)
- **Optical simulation** with physical optics (FDTD 3 years) and geometrical optics (Zemax 1 year)
- **Numerical analysis** and **scientific computation** using MATLAB(6 years), C++ (1 year) and Python (1 year)
- **Data science**: hands-on experience of applying machine learning to real world vision problem
- **Clean room process:** mask design, 200nm node tape-out and qualification with over 40 cleanroom tools(3 years)

EDUCATION

University of California, Berkeley Berkeley, CA
- Ph. D. Candidate, Mechanical Engineering Aug. 2014 – Oct. 2019

Tsinghua University Beijing, China
- Major: B. Eng. in Mechanical Engineering, with Distinction; GPA: 3.91, Ranking 3/85 Sep. 2010 – Jul. 2014
- Minor: B. Sci. in Economics Sep. 2011 – Jul. 2014

PROFESSIONAL EXPERIENCE

Advanced Development Intern, X-ray Metrology, KLA (formerly KLA-Tencor)
Uncertainty estimation for large scale parameter optimization in X-ray metrology Jun. 2019 – Sep. 2019
- Developed the algorithm module to estimate uncertainty propagation for a new metrology model
- Tested successfully on engineering build of this model and contribute to the intellectual properties of KLA

R&D Collaboration, CTO Office, Lam Research
Design and verification of nanosecond-resolved micron-scale resistive thermometer Aug. 2017 – May. 2018
- Electrical, thermal simulation, cleanroom fabrication, LabVIEW interface, field testing and error analysis
- The fastest (10ns) and smallest (50nm thin, 50um wide) thermometer [Review of Scientific Instruments, Accepted]

Graduate Student Researcher, Laser Thermal Lab, UC Berkeley Costas P. Grigoropoulos
Deep learning for defect detection during additive manufacturing Jan. 2019 – Sep. 2019
- Applied pretrained CNN (ResNet-50) on video data for supervised learning of defects in additive manufacturing(AM).
- Implemented data augmentation accounting for the random vibration to improve the robustness of the predictor(98%)
- Python, OpenCV, TensorFlow, Google Compute Engine,; added closed-loop control on the 3D printer.

Thesis: Laser-induced Phase Transformation of Silicon Nanostructure Aug. 2014 – May. 2019
- Fabrication: designed masks and carried out 200nm node silicon on quartz/glass NON-MOS cleanroom fabrication,.
- Instrumentation: pump-probe reflective probing and imaging of the femtosecond laser pulsing of silicon nanodisks.
- Simulation: upgraded and maintained a Monte Carlo multiphysics simulator with C++ backend and MATLAB GUI
- Applications: the first optical modulated active photonics metasurfaces based on silicon.

Software development for simulating crystal growth Aug. 2015 – Dec. 2015
- Responsible for algorithm selection, verification, and testing in a team of three [Github] [Report]
- Project for CS294-73, Unix, C++, Makefiles, Git, data structure, and algorithm complexity analysis

Undergraduate Research Training Program, Department of Thermal Eng., Tsinghua University Zhen Yang
Computational Fluid Dynamics and Heat Transfer Aug. 2012 – Oct. 2013
- Part 1: Prototype image processing to extract intersections of carbon nanotubes and solve the thermal networks.
- Part 2: Compute the entropy terms in the PDEs of computational fluid dynamics(CFD) simulator with C/C++

Product Development: RFID+ Internet Information System "THUnion"	Sep. 2012 – Apr. 2013

- Team lead, initiated a team of 12 students from 8 majors, developing a hardware/software integrated solution [Details]
- Prototype won 2nd prize in national contest and $5,000 award from social entrepreneurship contest

COURSES AND COMPETITIONS

Courses

- UC Berkeley-CS282A: CNN, RNN, LSTM[Course] [Github]
- UC Berkeley-CS 294-73: Software Engineering for Scientific Computation [Course] [Github]
- Coursera- Deep learning specification, Image Processing Specification(2/4)

Finalist (Top 0.5%) in Modeling Competition: Measure Academic Impact with Complex Networks   Feb. 2014

- Interdisciplinary Contest in Modeling(ICM), 3-day Online Contest held by U.S. COMAP [link]
- 1st author, responsible for framework construction, algorithm selection and report writing in a team of three [Details]

Degree Paper for Economics Minor: The Startup Affiliation Network in United States   Mar. – Jul. 2014

- Linked startups through VC investments and compared the network characteristics of Silicon Valley and Boston
- Outstanding economics minor degree paper awarded by School of Economics and Management, Tsinghua University

LEADERSHIP AND VOLUNTEER

Founding President of Tsinghua Alumni Association at Berkeley (THAAB)   Sep. 2017-Sep. 2019

- Organized the founding event with three keynote speakers and 130 attendees [Details].
- The organization now covered 400 members from academia and industry with semester based events.

Volunteer and Documentary Filming   Mar. – Jul. 2012

- Built PC based on used parts and donate them to elementary school students in rural villages[Details]
- Being filmed in a 2-million-click documentary on Sina (reposted on Youtube), and raised $30,000 for the school

SELECTED AWARDS

• Nano Block Grant Award from Graduate Division, UC Berkeley	2017, 2018
• Lam Research Fellowship in College of Engineering, UC Berkeley	2016
• Seban Fellowship in Department of Mechanical Engineering, UC Berkeley	2015
• Outstanding degree paper, Tsinghua University	2014
• Outstanding graduate, Tsinghua University	2014

FIRST-AUTHORED PUBLICATIONS

1. **Wang, L.**, Eliceiri, M., Deng, Y., Rho, Y., Shou, W., Pan, H., Yao, J. and Grigoropoulos, C.P., 2019. Phase-change silicon as an ultrafast active photonic platform. arXiv preprint arXiv:1904.11691. Submitted to Science Advances, Under Review
2. **Wang, L.,** Jin, Z., Paeng, D., Rho, Y., Long, J., Eliceiri, M., Kim, Y.S. and Grigoropoulos, C.P., 2019. Laser machined ultrathin microscale platinum thermometers on transparent oxide substrates. arXiv preprint arXiv:1905.09812. **Sensor and Actuator A**, Under Revision
3. **Wang, L.,** Paeng, D., Jin, Z., Zhang, H., Kim, Y.S., Rho, Y., Eliceiri, M. and Grigoropoulos, C.P., 2019. A Microscale Nanosecond Time-resolved Platinum Thermometer Probing Gaussian Pulsed Laser Induced Temperature. arXiv preprint arXiv:1904.11879. **Review of Scientific Instruments**, Accepted.
4. **Wang, L.,** Rho, Y., Shou, W., Hong, S., Kato, K., Eliceiri, M., Shi, M., Grigoropoulos, C.P., Pan, H., Carraro, C. and Qi, D., 2018. Programming nanoparticles in multiscale: optically modulated assembly and phase switching of silicon nanoparticle array. **ACS Nano**, 12(3), pp.2231-2241.
5. **Wang, L.,** Yang, Z. and Duan, Y., 2015. Influence of flow distribution on the thermal performance of dual-media thermocline energy storage systems. **Applied energy**, 142, pp.283-292.