

William Wu

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SUMMARY

Dr. William Wu is the CEO of QED, a company that builds technologies to collect and analyze agricultural and medical data in the developing world. He has over 12 years of experience with scientific computing, algorithm design, and data systems development. WW has developed technology solutions for many projects with complex data needs, such as the NASA Jet Propulsion Laboratory, Oregon Health and Sciences University, and the BMGF-backed Child Health And Mortality Prevention and Surveillance (CHAMPS) and Africa Soil and Information Service (AfsIS) projects.

EDUCATION

Stanford University

Ph.D. in Electrical Engineering

Dissertation: Discrete Sampling - Digital Generalizations To The Nyquist-Shannon Sampling Theorem

M.S. Mathematics, M.S. Electrical Engineering

University of California, Berkeley

B.S. Electrical Engineering and Computer Science

SELECTED WORK AND RESEARCH EXPERIENCE

Quantitative Engineering Design (QED | <https://qed.ai>)

Global

CEO and Co-Founder (2008 - present)

Co-founder of a technology company that builds end-to-end data processing workflows for clientele in Sub-Saharan Africa and Southeast Asia. with socially beneficial objectives.

- Daily direction of all aspects of a >10 FTE operation, including engineering, marketing, staffing, administration, and fundraising.
- Selected projects:
 - Child Health And Mortality Prevention and Surveillance (CHAMPS)
 - Rugged electronic medical record systems for real-time surveillance of under-5 mortality cases to support the Kenya Mortality Research Institute and affiliated hospitals.
 - Africa Soil and Information Service (AfsIS)
 - Built novel tools for digital agricultural research, including crowdsourcing platforms for land cover assessment, mobile apps for field surveying, soil chemistry databases, spectroscopy prediction tools, and GIS mapping tools.
- Other projects have included: mobile apps for diagnosis of plant illnesses, wind forecasting, natural language processing, real estate portfolio investment, and computer vision for underground structural stress analysis.

NASA Jet Propulsion Laboratory

Pasadena, CA

Telecommunications Engineer and Researcher (2010 - 2013)

Select projects include:

- Optical Payload for Lasercomm Science: Telecommunications Cognizant Engineer responsible for design and implementation of digital signaling, source coding, channel coding, and frame synchronization for building a free-space optical communications link between Earth and the International Space Station.
- Mars Reconnaissance Orbiter: Simulation and Analysis Lead responsible for researching novel techniques for spectral estimation and low-complexity notch filtering, motivated by dynamic mitigation of electromagnetic interference tones.
- Cloud computing: Designed and implemented cloud-based error-correcting encoders and decoders using Hadoop Streaming and AWS tools. Turbo code simulations that took 1-2 months could be achieved in 1-2 hours for \$50 dollars.

Oregon Health and Sciences University

Portland, Oregon

Bioinformatics Technical Consultant (02/2010 - present)

- Built web applications allowing life science researchers to share and probe large confidential datasets. Included Mathematica-powered visualizations of bioinformatics data plotted across different dimensions and custom image segmentation algorithms using morphological image processing and de-noising.
- Custom-designed service oriented architecture and user management systems. Implemented security safeguards using SSL, CAPTCHAs, and MD5.
- Saved upwards of \$150,000 to \$250,000 yearly through the automation of slow and error-prone manual data entry procedures.

SELECTED PUBLICATIONS

"Optical link design and validation testing of the Optical Payload for Lasercomm Science (OPALS) system." Oaida, B.; Wu, W.; Erkmen, B.; Biswas, A.; Andrews, K.; Kokorowski, M.; Wilkerson, M. Proc. SPIE 8971, Free- Space Laser Communication and Atmospheric Propagation XXVI, 89710U, March 6, 2014.

"Discrete Sampling and Interpolation: Universal Sampling Sets for Discrete Bandlimited Spaces." Osgood, B.; Siripuram, A.; Wu, W. IEEE Trans. on Information Theory, vol. 58, no. 7, July 2012.

"Global Cloud Cover for Assessment of Optical Satellite Observation Opportunities: A HypsIRI Case Study." Mercury, M.; Green, R.; Hook, S.; Oaida, B.; Wu., W.; Gunderson, A.; Chodas, M. Remote Sensing of Environment 126 (2012) 62-71.

SELECTED SKILLS

Languages: Python, Mathematica, Matlab, C/C++

Databases: MySQL, PostgreSQL, MongoDB

Computing Libraries: pandas, scikit-learn, numpy, scipy, GSL, OpenCV

Devops: AWS Suite, UNIX System Administration, Gerrit, Jenkins, Sentry, Zabbix

Verbal: Native English speaker. Conversational fluency in Mandarin.