BEN KURTZ | work@benkurtz.org

EXPERIENCE

TESLA ENERGY — OCTOBER 2017-FEBRUARY 2018
Engineering Intern
- Energy market participation software for utility-scale battery storage

UC SAN DIEGO — SEPTEMBER 2011-SEPTEMBER 2017
Graduate Student Researcher
- Algorithm development for solar energy forecasts based on sky images
- TA engineering thermo, including recitation sections, teaching one week of lectures, and writing exams
- Build and maintain lab group website, 20+ compute servers, and 400 TB of disk storage

SOLAR DECATHLON TEAM — MARCH 2010-SEPTEMBER 2011
Engineering Team Member and Webmaster
- Modeling and preliminary specifications of home PV system
- Research on efficient lighting technologies
- Website design, coding, and maintenance

NATIONAL RENEWABLE ENERGY LABORATORY — JUNE-AUGUST 2010
Summer Undergraduate Laboratory Internship
- Assembly and programming of a novel instrument to measure broad-spectrum specular mirror reflectance
- Draft technical paper & poster session presentation

APPLE, INC. — JUNE-SEPTEMBER, 2007
Retail Specialist
- Communicating effectively and persuasively with customers

EDUCATION

UNIVERSITY OF CALIFORNIA SAN DIEGO — SEPTEMBER 2011-SEPTEMBER 2017
PhD in Mechanical Engineering

CALIFORNIA INSTITUTE OF TECHNOLOGY — SEPTEMBER 2007-JUNE 2011
BS in Physics

UNIVERSITY OF COPENHAGEN & THE DANISH TECHNICAL UNIVERSITY — AUGUST-DECEMBER 2010
Exchange Student in Physics

PUBLICATIONS

- B. Urquhart, **B. Kurtz**, E. Dahlin, M. Ghonima, J. E. Shields, and J. Kleissl, “Development of a sky imaging system for short-term solar power forecasting,” *Atmospheric Measurement Techniques*, vol. 8, iss. 2, pp. 875-890, 2015. doi:10.5194/amt-8-875-2015
- H. Yang, **B. Kurtz**, D. Nguyen, B. Urquhart, C. W. Chow, M. Ghonima, and J. Kleissl, “Solar irradiance forecasting using a ground-based sky imager developed at UC San Diego,” *Solar Energy*, vol. 103, pp. 502-524, 2014. doi:10.1016/j.solener.2014.02.044
- M. I. Gohari, B. Urquhart, H. Yang, **B. Kurtz**, D. Nguyen, C. W. Chow, M. Ghonima, and J. Kleissl, “Comparison of solar power output forecasting performance of the total sky imager and the University of California, San Diego sky imager,” *Energy Procedia*, vol. 49, pp. 2340-2350, 2014. doi:10.1016/j.egypro.2014.03.248
- F. A. Mejia, **B. Kurtz**, K. Murray, L. M. Hinkelman, M. Sengupta, Y. Xie, and J. Kleissl, “Coupling sky images with three-dimensional radiative transfer models: a new method to estimate cloud optical depth,” *Atmos. Meas. Tech.*, 9, 4151-4165, 2016. doi:10.5194/amt-9-4151-2016
- B. Urquhart, M. Ghonima, D. Nguyen, **B. Kurtz**, C. W. Chow, and J. Kleissl. “Sky-imaging systems for short-term forecasting.” In Jan Kleissl, editor, *Solar Energy Forecasting and Resource Assessment*, chapter 9. Academic Press, 2013.

- B. Urquhart, **B. Kurtz**, and J. Kleissl, “Sky camera geometric calibration using solar observations,” Atmospheric Measurement Techniques, 9, 4279-4294, 2016. doi:10.5194/amt-9-4279-2016
- G. Wang, **B. Kurtz**, and J. Kleissl, “Cloud base height from sky imager and cloud speed sensor,” *Solar Energy*, vol. 131, pp. 208-221, 2016. doi:10.1016/j.solener.2016.02.027
- **B. Kurtz** and J. Kleissl, “Measuring diffuse, direct, and global irradiance using a sky imager,” *Solar Energy*, vol. 141, pp. 311–322, 2017. doi:10.1016/j.solener.2016.11.032
- **B. Kurtz**, F. Mejia, and J. Kleissl, "A Virtual Sky Imager Testbed for Solar Energy Forecasting," *Solar Energy*, vol. 158, pp. 753–759, 2017. doi: 10.1016/j.solener.2017.10.036

INVITED TALKS AND REVIEWING

- *Applications of Short-term Solar Forecasting with Ground Imagery* – Invited talk at "Conference on solar forecasting in an insular environment" – La Réunion, March 2013
- *Solar Forecasting with Ground Imagery* – Invited talk at Colloque Martinique Energie et Environnement 2014
- *Overview of PV Forecasting work at UC San Diego* – Invited talk at UVIG Variable Generation Forecasting Workshop – Denver, CO, February 2015
- Reviewed journal articles for *Solar Energy* (3), *Applied Optics* (3), *Journal of Applied Meteorology and Climatology* (1), and *Journal of Atmospheric and Oceanic Technology* (1)

SELECTED COURSEWORK

MECHANICAL ENGINEERING: engineering design and machining, fluid dynamics, engineering thermodynamics, radiative transfer **ELECTRICAL ENGINEERING:** microprocessor basics and assembly language, solid state devices lab **MATH:** calculus, linear algebra, complex analysis, ordinary and partial differential equations, statistics **PHYSICS:** classical and quantum mechanics, E&M, statistical physics, relativity, waves, analog electronics lab, nuclear physics lab, solid state physics, physics of sustainable energy, order of magnitude physics **CHEMISTRY:** general chemistry, intro chemistry lab **COMPUTER SCIENCE:** C language shop, numerical computing, machine learning **MISC:** atmospheric thermodynamics, cloud dynamics, intro to environmental science, biology, harmony, intro to sociocultural anthropology, Danish language

OTHER KNOWLEDGE AND SKILLS

- Computer programming in C, C++, Objective-C, Perl, MATLAB, Python, and SQL, among others
- Software deployment platforms, including git, Jenkins, Docker, and Kubernetes
- Web Design and programming in HTML, CSS, and Javascript
- Linux/UNIX system administration
- Machine shop training (mill, lathe, band saw, CNC, 3D printer, etc)
- Theatrical lighting design and set construction
- Partial fluency in French and Danish