

# Austin C. Todd, PhD

Rigaer Str. 14, 10247 Berlin, Germany

austin@austinctodd.com | +49 01525 9919520 | [www.austinctodd.com](http://www.austinctodd.com)

## Profile

---

I am a highly experienced data scientist who is passionate about making the world a better, more sustainable place through technological innovation. My work brings machine learning and analytics to problems in energy, mobility, and IoT. I have proven ability leading analytics teams from product conceptualization to operational implementation.

## Experience

---

### SENIOR DATA SCIENTIST, SONNEN –2021-PRESENT

Developing Smart Monitoring and Anomaly Detection solutions for a fleet of >70,000 energy storage systems worldwide.

- **Developed metrics** to monitor the uptime of our worldwide fleet of batteries
- **Built deep-learning models** for automated detection of problematic systems
- **Engaged with stakeholders** across different departments to identify new analytics opportunities
- **Mentored junior members of team** on effective data science product development

### DATA SCIENTIST, NATIONAL RENEWABLE ENERGY LABORATORY – 2019-2021

Lead data science and analytics projects across several pillars of NREL's strategic mission to drive innovation in renewable energy and to reduce global carbon emissions.

- **Led analytics team** for evaluation of pre-post wind plant construction performance evaluation
- **Developed deep learning models** for application to Smart Cities, urban mobility, and transportation operations
- **Deployed AI models** for anomaly detection and optimization of supercomputer cooling resources
- **Developed new computing capabilities** for users of NREL's High Performance Computing Center
- **Mentored junior data scientists and interns** on machine learning and data science

### LEAD DATA SCIENTIST, METEOGROUP – 2017-2018

Built and delivered machine learning products for industry clients by leveraging internal weather data and forecasts into bespoke customer solutions. Data science lead for international delivery management team.

- **Developed real-time machine learning system** used by utility companies to predict network outages, resulting in €200K+ contractual investments from multiple industry customers
- **Designed Proof-of-Concept** analytics projects for new customer acquisition in IoT realm

### DATA SCIENTIST/ENGINEER, TELEKOM INNOVATION LABORATORIES – 2015-2017

Led industry analytics projects in the automotive, energy, telecommunications, and IoT domains.

- **Led analytics Proof-of-Concepts** for clients in energy domain - resulting in €100K+ client investment
- **Developed algorithms** for automotive sensor data simulation & visualization
- **Supervised 6 student research projects** on machine learning, data visualization, and data mining

### RESEARCH ASSOCIATE, NORTH CAROLINA STATE UNIVERSITY – 2013-2015

Postdoctoral research in applied ocean physics, including autonomous underwater vehicles and real-time forecast models.

- **Developed prediction models** for ocean conditions in the Atlantic Ocean on HPC platforms, statistically evaluated models against real-world sensor data, A/B testing, and model tuning
- **Created ETL and QC pipelines** for autonomous underwater vehicle sensor data

### RESEARCH SCIENTIST, CENTER FOR OCEAN-ATMOSPHERIC PREDICTION STUDIES – 2005-2013

Performed academic research in applied ocean physics toward completion of dissertation.

- **Developed prediction models** for ocean conditions in the Gulf of Mexico on an HPC platform, statistically evaluated models against real-world sensor data, A/B testing, and model tuning
- **Implemented statistical prediction models** of seasonal wildfire risk for the Florida Climate Center

## Technical Skills

---

### PROGRAMMING LANGUAGES

Python, Matlab, R, bash/shell, Fortran

### MACHINE LEARNING FRAMEWORKS

Tensorflow, Keras, scikit-learn, OpenCV, H2O.ai

### VISUALIZATION SOFTWARE

Matplotlib, Plotly, Dash, R Shiny

### DATA AND COMPUTING ARCHITECTURES

AWS, Kafka, HPC Systems, SQL, Linux/Unix

## Education

---

Florida State University, Tallahassee, FL – **PhD, Physical Oceanography**, 2013

Florida State University, Tallahassee, FL – **B.S., Meteorology, B.S. Mathematics (cum laude)**, 2007

## Advisory & Leadership Experience

---

### EXTERNAL DATA SCIENCE ADVISOR

Nunam (Bangalore, India and Berlin, Germany. 2019-2020).

Advised engineering team on implementation of data science and machine learning models to improve their second-life battery diagnostics system.

### PROJECT SUPERVISION

NREL Wind Plant Performance & Prediction Benchmarking Initiative

2019-2021: Data analytics team lead (6 junior & senior researchers)

NREL Supervised Undergraduate Laboratory Internship Mentor

Summer 2020 (1 B.S. Student): *Computer Vision for detection and classification of highway vehicles*

TU Berlin Internet of Services Lab

Winter 2015 (5 M.S. Students): *Building a big data platform for analysis of driver behaviour*

Summer 2015 (4 M.S. Students): *Identifying successful business opportunities from Yelp & OpenStreetMap Data*

## Selected Recent Publications

---

- **Todd, A.C.**, M. Optis, N. Bodini, M.J. Fields, J. Perr-Sauer, J.C.Y. Lee, E. Simley (2021): *An independent analysis of bias sources and variability in wind plant pre-construction energy yield estimate methods*. Wind Energy (in review).
- Fields, M. J., M. Optis, J. Perr-Sauer, **A.C. Todd**, J.C.Y. Lee, J. Meissner, E. Simley, N. Bodini, L. Williams, S. Sheng, and R. Hammond (2021): *Wind Plant Performance Prediction Benchmark Phase 1 Technical Report*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5000-78715. <https://www.osti.gov/biblio/1826665/>
- **Todd, A.C.**, A. Purkayastha, H. Egan, D. Sickinger, M. Eash, S. Serebryakov, J. Hanson, M. Slaby, N. Wunder, N. Guba, K. Munch, T. Cader, and C. Phillips (2021): *Artificial Intelligence for Data Center Operations (AI Ops)*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-2C00-79712. <https://www.nrel.gov/docs/fy21osti/79712.pdf>
- Perr-Sauer, J., M. Optis, J.M. Fields, N. Bodini, J.C.Y. Lee, **A.C. Todd**, E. Simley, R. Hammond, C. Phillips, M. Lunacek, T. Kemper, L. Williams, A. Craig, N. Argawal, S. Sheng, J. Meissner (2021): *OpenOA: An open-source codebase for operational analysis of wind farms*. Journal of Open Source Software, 6(58), 2171, <https://doi.org/10.21105/joss.02171>
- Berres, A., T.J. LaClair, C. Wang, H. Xu, S. Ravulaparthi, **A.C. Todd**, S. Tennille, and J. Sanyal (2020): *Multiscale and Multivariate Transportation System Visualization for Shopping District Traffic and Regional Traffic*. Transportation Research Record, 1-15.

## Personal Details

---

### LANGUAGES

English (mother tongue)

German (conversational – B1)

French (basic conversational)

### WEBSITES AND DIGITAL PORTFOLIO

austinctodd.com

linkedin.com/in/austinctodd

### HOBBIES

Cycling, climbing, surfing, running, sailing, guitar