

Austin C. Todd, PhD

Data Scientist

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Profile

I am a data scientist with a focus on machine learning and analytics. With over 10 years of statistical analysis and predictive modeling experience in fields spanning from ocean physics to transportation, energy, IoT, and beyond, I bring a unique approach into how to solve problems in a variety of fields using the latest machine learning and analytics methods.

Experience

LEAD DATA SCIENTIST, METEOGROUP – 2017-2018

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

- **Developed machine learning models** for predicting energy grid network outages
 - Resulted in €200K+ contractual investments from multiple industry customers
 - Led project evolution from Proof-of-Concept to operationalization
- **Designed analytics projects** for new customer acquisition in the IoT realm
- **Advised research and engineering** teams on data science best practices

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

Lead data scientist for various industry analytics projects in conjunction with internal and external partners. Contracted for projects in the automotive, energy, telecommunications, and IoT (smart monitoring & predictive maintenance) domains.

- **Led analytics projects** for clients in energy domain - resulting in €100K+ client investment
- **Developed fundamental algorithms for:**
 - Automotive sensor data simulation & visualization
 - Predicting location of road hazards from noisy data
- **Supervised 6 student research projects** on machine learning, data visualization, back-end/front-end development, geospatial data analysis, and data mining for mobility patterns

RESEARCH ASSOCIATE, NORTH CAROLINA STATE UNIVERSITY – 2013-2015

- **Lead algorithm developer for projects including:**
 - Prediction of ocean and atmospheric conditions in the Atlantic Ocean.
 - Statistical evaluation of models against observed data, A/B testing, and model tuning.
 - Automation of model evaluation & visualization techniques in real-time environment.
 - Data wrangling and quality control for data from autonomous underwater vehicle sensors
- **Designed image processing technique** for pattern recognition in deep sea time-lapse imagery
- **Secured \$98K funding** for multi-institutional research project proposal
- **Authored 4 manuscripts** and presented at multiple research conferences and symposiums
- **Discovered an 18th-century shipwreck** off the coast of North Carolina, USA

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

- **Developed prediction models** for ocean conditions in the Gulf of Mexico, 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
- **Received \$2.5K Guy Harvey Excellence Award** based on academic merit and proposed research

Education

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

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

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

Leadership

STUDENT COMMITTEE SERVICE

Doreen McVeigh (PhD Oceanography - NCSU)

Bianca Lüders (MS Computer Science - TU Berlin)

STUDENT RESEARCH SUPERVISION

Dženan Softić (Computer Science/EIT - TU Berlin)

Ashish Ram (Computer Science/EIT - TU Berlin)

Mustafa Elbehery (Computer Science/EIT - TU Berlin)

Publications

- R. He, **A.C. Todd**, C. Lembke, T. Kellison, C. Taylor, and D.A. Mann (2018): *Cross-shelf exchange associated with the Gulf Stream in the South Atlantic Bight: Direct observations using an autonomous underwater glider*. Marine Technology Society Journal, 52 (3), 19-27
- D.M. McVeigh, D.B. Eggleston, **A.C. Todd**, C.M. Young, and R. He (2017): *The influence of larval migration and dispersal depth on potential potential larval trajectories a deep-sea bivalve*. Deep Sea Research Part I: Oceanographic Research Papers, 127, 57-64.
- Johansen, C., **A.C. Todd**, and I. MacDonald (2017): *Time series video analysis of bubble release processes at natural hydrocarbon seeps in the Northern Gulf of Mexico*. Marine Petroleum Geology, 82, 21-34.
- **Todd, A.C.**, S.L. Morey, and E.P. Chassignet (2014): *Circulation and cross-shelf transport in the Florida Big Bend*. Journal of Marine Research, 72, 446-475.
- **Todd, A.C.** (2013): *Circulation dynamics and larval transport mechanisms in the Florida Big Bend*. Florida State University, PhD Dissertation, 90pp.

Technical Skills

PROGRAMMING LANGUAGES

Python, SQL, bash/csh/shell, HTML, CSS, Fortran

ANALYSIS TOOLS & PACKAGES

Pandas, numpy, scikit-learn, Matlab, R, QGIS, H2O.ai

VISUALIZATION TOOLS & PACKAGES

Matplotlib, Leaflet.js, Highcharts, plotly, R Shiny, Matlab, d3.js, QGIS, Adobe CS

TECHNICAL EXPERTISE

Statistics and machine learning (regression, clustering, tree-based learning), data cleansing/munging, pattern recognition, time series analysis, geospatial statistics, graph theory/network analysis, predictive modeling, numerical analysis, parallel computing (including AWS and Azure), image processing

LANGUAGES

English (mother tongue), German (conversational – B2), French (basic conversational)

WEBSITES AND DIGITAL PORTFOLIO

austinctodd.com | vimeo.com/austinctodd | medium.com/@austinctodd | linkedin.com/in/austinctodd