

Education

- **Indiana University** Bloomington, IN
Mathematics BS., Computer Science BS., *2013 - 2017*
 - Systems specialization
 - Research focus on Machine Learning
 - Major GPA: 3.3

Research Experience

- **Indiana Statistical Machine Learning Lab** Bloomington, IN
Undergraduate Researcher under Dr. Martha White *Spring 2016 - current*
 - Studied Dictionary Learning approaches and their relation to Autoencoders.
 - Empirically compared predictive representation methods, Temporal-Difference Networks and General Value Functions.
 - Studied use of kernel methods for improved representational power for globally convex losses.
 - Designed, implemented, and maintained codebase for algorithm comparison and empirical support.
- **Pestilli Research Lab** Bloomington, IN
Undergraduate Research Assistant under Dr. Franco Pestilli *Fall 2016*
 - Implemented and maintained open-source codebase for cleaning and conversion of brain tractography data for publication.
- **Data to Insight Center** Bloomington, IN
Undergraduate Research Assistant under Dr. Inna Kouper *Fall 2015*
 - Implemented exploratory data analysis methods on large publication dataset.
 - Created visual representations of interesting trends and features of datasets.
 - Prepared meaningful visualizations on a spherical monitor for presentation at the 2015 International Conference for High Performance Computing.

Teaching Experience

- **Machine Learning - CSCI-B555** Indiana University
Teaching Assistant under Professor Martha White *Fall 2016*

Industry Experience

- **Interactive Intelligence - <https://inin.com>** Indianapolis, IN
Software Engineering Intern May 2015 - August 2016
 - Worked with a team of developers to develop and maintain a large codebase for cloud-based multimedia telecommunications.
 - Full-stack developer working with NodeJs, Java, Javascript, AWS, HTML, Less/CSS, EmberJs, webrtc, among other web technologies.
 - Maintained automated testing framework in addition to software development.
- **HC1 - <https://hc1.com>** Indianapolis, IN
Business Intelligence Intern January 2015 - May 2015
 - Used data analytics tools to make business intelligence decisions related to our healthcare systems.

Publications

1. Lei Le, Andrew Patterson, and Martha White, *Out-Of-Sample Prediction for Supervised Dictionary Learning* in submission to *AISTATS* (2016).

Presentations

- *Spherical Visualizations of Publication Metadata*
 - Indiana University Fall Research Symposium (Poster) – Bloomington, Indiana

Awards, Grants & Honors

Best Undergraduate Poster, Indiana University 2015

Selected Open Source Projects (github.com/andnp)

- **ResearchML** C++, CUDA
A set of programming tools and algorithms to speed up machine learning research. 2015 - Current
- **o3d** Python
Neuro-imaging data release. Over 10tb of brain images and tractography generations. 2016

Skills

- **Numerical Analysis and Computer Science:** Machine Learning, Data Mining, Optimization, Computational Science, Artificial Intelligence, Linear Algebra, Monte Carlo Methods, Applied Statistics, Iterative Methods, Parallel Programming, Distributed Systems, Data Structures
- **Development:** C/C++ (preferred), Python, R, Matlab, CUDA, JavaScript, L^AT_EX
- **Technology:** numerical libraries, web frameworks, databases, linux, git