XUNTAO HU

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SUMMARY

• Looking for **Data Scientist / Machine Learning Engineer** positions.
• **5+ years** mathematical research experience and **6+ years** teaching / tutoring experience in maths. Expert in Statistics, Geometry. Skillful in programming languages such as **Python** (packages including **Pandas, Keras, Matplotlib, etc.**) and **Java**. Good at explaining complex concepts to non-experts.
• **Quick Learner, Problem Solver, Team Worker.** I am ready and excited to meet new challenges and continue to increase knowledge. I enjoy doing hands-on development as well as conducting research. My biggest pleasure is to see my ideas and codes making an impact to the world.

EDUCATION

Stony Brook University *August 2012 - Present*
Mathematics Ph.D. in May 2019 GPA: 3.93/4.00
Advisor: Samuel Grushevsky Visa Status: F1

Zhejiang University, China *2008-2012*
B.S. in Mathematics and Applied Mathematics
Minored in English Literature
Advisor: Fangyang Zheng (Ohio State University)

SKILLS

Programming Languages	Python, SQL, R, Java
Python Packages	Pandas, Keras, Matplotlib, Numpy, Scipy, Tensorflow, Jupyter
Software & Tools	HTML, LaTeX, Excel, Maple

INDUSTRY EXPERIENCE

Using News to Predict Stock Movements Sep 2018 - Current
Kaggle Competition

- Analyzed dataset using NLP that contains over 90 million entries of news data that covers news headlines in past 10 years. Established supervised models that correlate the dataset to the stock market movements in the same period.
- Pandas and Keras were used for analysis, and Matplotlib was used for visulizations. Models used include Tree Models, Bidirectional LSTM and CNN.

Categorizing News based on headlines and short descriptions Sep 2018 - Oct 2018
Kaggle Competition

- Used NLP to sort news into categories such as "Politics", "Entertainment", etc. Used different models such as CNN , Bidirectional GRU and LSTM with Attention and compared these models.
- Pandas, Keras and Matplotlib were used. Link to codes on GitHub: http://github.com/XT286/News_Category_Kaggle

RELEVANT COURSES

Computer	Algorithms (Coursera), Data Sciences Machine Learning Deep Learning (Coursera) Python for Scientific-Computing	**Mathematics**	Linear Algebra Probabilities and Statistics Partial Differential Equations Geometry and Topology Real and Complex Analysis

TEACHING EXPERIENCE

Leturer *Summer 2018*

• Differential Equations; Logistic Models; Sequences and Series. Course page: `http://www.math.stonybrook.edu/~xuntaohu/mat127.html`

• *Course Evaluation Grade: 5/5 (Reports available).*

Leturer *Summer 2017 & Summer 2015*

• Integration Techniques. Course page: `http://www.math.stonybrook.edu/~xuntaohu/mat126.html`

• *Course Evaluation Grade: 4.25/5 (Averaged over the two courses; Reports available).*

Teaching Assistant / Grader *Since 2012*

• All levels of Calculus, Statistics and Graduate-level courses. Two courses per semester.

MATHEMATICS RESEARCH AND PUBLICATIONS

Degeneration of Abelian Differentials Fall 2016 to Fall 2017

- Discovered a formula that describes the behavior of holomorphic differentials (infinitesimal increment of a function) on Riemann surfaces as they become distorted. Typical example of a Riemann surface is a donut. One can imagine drawing a loop that goes around the handle of the donut and pinching the loop to a point, in this way a donut becomes a croissant.
- **X. Hu** and C. Norton, *General Variational Formulas for Abelian Differentials,* 40 pages, International Mathematics Research Notices. DOI:10.1093/imrn/rny106, 2017

Modular Form For Hyperflex Locus Fall 2014 to Fall 2015

- Considered a six-dimensional space which is the set of all Riemann surfaces of genus three (imagine three-hole donuts). Discovered an equation in this space whose solutions correspond precisely to those Riemann surfaces that has a hyperflex tangent plane, that is, a plane that is tangent to the surface at a four-fold point.
- **X. Hu**, *Locus of Plane Quartics with A Hyperflex,* 15 pages, Proceedings of the American Mathematical Society 145 (2017), 1399-1413.

INVITED TALKS

GSCAGT	*Temple University, Jun 2018*
GSTGC	*UIC, Apr 2018*
Algebraic Geometry Seminar	*Stony Brook University, Jan 2018*
RIT Seminar	*University of Maryland, Sep 2017*
Algebraic Geometry Seminar	*Leibniz Universität, Germany, Sep 2015*
Algebraic Geometry Seminar	*Zhejiang University, China, Dec 2014*

OTHERS

Languages	English, Chinese, Cantonese
Personal Hobbies	Photography, Cooking, Hiking, Swimming