

Li, Cheng-Hsien

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Summary of Qualifications

- Strong problem-solving skills balanced with mathematical rigor and physical intuition.
- Proficient in numerical computation and data analysis with multiple programming languages.
- Excellent skills in verbal and written communication with experts and non-experts.
- Passionate about and capable of learning new ideas and technologies in depth.

Education

- **Ph.D. in Physics**, University of Minnesota [GPA: 3.75/4.00 & [Dissertation Link](#)] Sep. 2017
 - ▷ Recipient of the *2011 Outstanding Teaching Award* from the School of Physics and Astronomy.
- **B.S. in Physics**, National Tsing Hua University, Taiwan [GPA: 3.30/4.00] 2008
 - ▷ Recipient of two research awards from the Physical Society of and National Science Council of Taiwan.

Quantitative Experience

- **Part-time Quantitative Risk Analyst at Numeraxial LLC** since Mar. 2017
 - ▷ Prototype and document a credit value at risk calculation for corporate bonds.
 - ▷ Identify principal components of economic indicators for further study of their relation to stock returns.
 - ▷ Research, assess, and recommend quantitative methods of relevance to the firm's problems.

Programming Experience

- **C/C++:**
 - ▷ Implemented Monte Carlo simulations for goodness-of-fit test and maximum likelihood estimation.
 - ▷ Developed an adaptive solver for a system of complex ODEs to study neutrino evolution problems.
 - ▷ Applied the GNU Scientific Library to performing standard and ad-hoc numerical tasks.
- **Matlab:**
 - ▷ Implemented linear/logistic regression, principal component analysis, support vector machine, neural network, and model validation for machine learning problems (Coursera certificate: [SR695GRCE6M2](#)).
 - ▷ Produced high-quality figures to visualize data from scientific computation for thesis work.
- **Python:**
 - ▷ Automated compilation of C/C++ code or L^AT_EX template in UNIX environment.
 - ▷ Implemented double exponential smoothing method (time series forecasting) with the SciPy stack.
 - ▷ Built an integration-preserving spline fitting function for temporal disaggregation of GDP data.

Academia Experience

- **Graduate Research Assistant at University of Minnesota** 2013 - 2017
 - ▷ Performed statistical analysis on a sparse data set from the SN1987A observation.
 - ▷ Derived a 3D PDE solution for neutrinos and studied its quantum-mechanical implications.
 - ▷ Received four grants to present at domestic/international conferences and first-authored two articles.
- **Graduate Teaching Assistant at University of Minnesota** 2010 - 2013
 - ▷ Identified students' conceptual difficulty and effectively communicated with the professor.
 - ▷ Organized weekly meeting and TA duty assignment as the lead TA in the teaching team.
- **Undergraduate Research Assistant at National Tsing Hua University** 2006 - 2008
 - ▷ Engineered a microwave component and resolved an experimental anomaly via simulation.
 - ▷ Coauthored three journal and conference papers and presented at National Science Council of Taiwan.

Leadership Experience

- **Second Lieutenant in Taiwanese Air Force (compulsory service)** 2008 - 2009
 - ▷ Coordinated and prioritized the company's operation under time pressure as the duty officer.

Other Technology Skills

Linux, Windows, L^AT_EX with its presentation package, Mathematica, Microsoft Office