

# LEI MA

## Data Scientist & Ph.D. in Physics

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📍 Cologne, Germany

🌐 datumorphism.com

👤 emptymalei

## EXPERIENCES AND PROJECTS

### Full Stack Data Science

- Creating and maintaining data pipelines and data warehouse for apartment data, landlord and tenant data, and marketing data, enabling stable and clean data for analysis.
- Providing data science service to the company and presented visualization and reports to multiple departments, enabling the company to make decisions based on data as well as presentations to board meetings.
- Designed, prototyped, and built a data product for landlords, helped landlords making decisions based on data.

### Ph.D. in Physics

- Developed analytical and numerical methods to explain neutrino oscillations in different environments as my Ph.D. research.
- Developed an artificial neural network using Python and implemented different optimization methods to solve differential equations of neutrino oscillations.

### NeuronStar: Neuroscience, Machine Learning, and Complex Networks

- Coorganized this successful reading club with Han Lu.
- Read, discussed, and analyzed *Spiking Neuron Models* and *The Element of Statistical Learning*.
- Discussed papers on neuroscience, machine learning, and complex networks weekly and accumulated knowledge: <http://reading-club.github.io>
- Built the note system for the reading club on GitHub and helped the team keeping organized: <http://neuronstar.cc/club>

### United (Unknown) Unscientific Producers

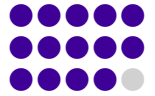
- Built a back end package for real time data scraping using Python and a front end framework for data visualization using Vue.js and Plotly.js and delivered reports to the team.
- Wrapped the core developed by the team and compiled a PC/Mac App using electron and node.js and helped the team to scrape big data in a distributed fashion. <https://github.com/uupers/BiliSpider/releases>
- Collaborated with the team to build the data scraping and data analysis code using Python, Pandas, and Node.js and scraped user and video meta data one of the largest video hosting website in China.
- Developed data cleansing, data processing, and data visualization code using Python and Panda and understood the video characteristic and submission history.

### Massive Open Online Course Platform at Guokr.com

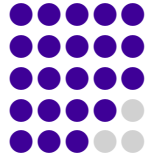
- Collaborated with operations team using online communications and offline meetups to help the company kick start the new MOOC platform.

## SKILLS

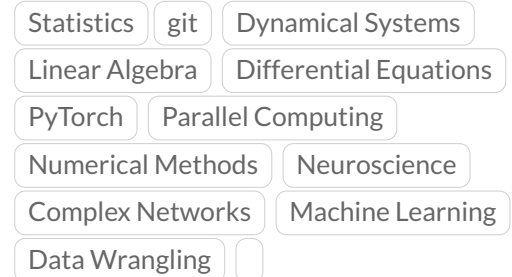
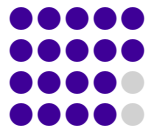
Statistical Learning  
Data Visualization  
Neural Network



Python  
SQL  
Mathematica  
C/C++  
JavaScript



Pandas/Numpy/Scipy  
BigQuery  
ETL/Data Warehousing  
Web Scraping



## LANGUAGES

Chinese  
English



## EDUCATION & WORK

### Data Scientist

Homelike GmbH

📅 2018.08 - Now

📍 Cologne, Germany

### Ph.D. in Physics

University of New Mexico

📅 2013.09 - 2018.07

📍 Albuquerque, USA

### Cosmology Research Assistant

Fudan University

📅 2010.09 - 2012.11

📍 Shanghai, China

### B.Sc. in Physics

Shandong University

National Science Talents Training Base

📅 2006.09 - 2010.07

📍 Jinan, China

# SUPPLEMENTARY PROJECTS

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## Web Developer

- Developed a academic paper tracking system using JavaScript and maintained our knowledge of the research field updated.  
<http://neutrino.xyz/updates>
- Developed a neutrino oscillation visualization website using Vue.js.  
<http://neutrino.xyz/neutrino-oscillation-js>
- Developed my own notebook system using Sphinx, Jekyll, Liquid syntax, and Vue.js, and kept all my notes clean and organized.  
Examples:
  - My **physics notebook**:  
<https://github.com/emptymalei/physics>
  - My **neutrino physics notes** where I explore the field of neutrinos physics:  
<http://docs.neutrino.xyz>
  - My **statistical physics online notes** where I jotted down the fascinating ideas:  
<http://statisticalphysics.openmetric.org>

## Open Source and Open Science Supporter

- Created Open Task Force as an organization for open science and popularized Creative Commons License on guokr.com which is the largest popular science website in China  
<https://github.com/opentf>
- Curated list of tools for research and got more than 370 stars on Github.  
<https://github.com/emptymalei/awesome-research>
- Hosted all my research code and documentation about neutrino physics and cosmology on GitHub for open access:  
<https://github.com/NeuPhysics>  
<https://github.com/CosmologyTaskForce>
- Joined SWARMA Club which is a group of young scientists all over the world discussing and working on interdisciplinary science such as complex systems, human dynamics, and neuroscience. Shared my work of a new form of science fiction as well as the science and technology behind it.

## Fast and Persistent Learner

- Developed a Today I Learned system using Jekyll, and grow a big tree of small pieces of knowledge.  
<http://openmetric.org/til>
- Learned and tracked useful **computer science** knowledge that I encountered and learned.  
<http://computational.neutrino.xyz>
- Studied and wrote about machine learning, neuroscience, and complex systems  
<http://intelligence.readthedocs.io>

## Trained Speaker

- Delivered many presentations on both academic and non-academic topics, including an invited talk on my research at Los Alamos National Lab, a talk to show the powerful concepts of git to physicists, and a crash course of artificial neural network for physicists etc:  
<https://speakerdeck.com/emptymalei>