# Additional Information

Zhenghong Lieu

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   - Databases
     - SQL
     - Relational Algebra
     - Relational Design Theory
   - Computer architecture (NAND 2 Tetris I & II)
   - Linear Algebra
   - Multivariate Calculus
   - Machine Learning
   - Big Data Analysis in Scala and Spark
   - Functional Programming in Scala
6. Short snippet of Mathematical Analysis problem set
7. Short snippet of software project I developed
8. Selection of tutor's comments

# Zhenghong Lieu
# (lieuzhenghong@gmail.com)

## Education

**Oct 2017 – present**

**University of Oxford**

BA in Philosophy, Politics and Economics (PPE)

**Jun 2017 – present**

**Massive Open Online Courses (MOOCs) completed**

Computer Science

- Algorithms and Data Structures (Stanford)
- Databases (Stanford)
- Machine Learning (Stanford)
- From NAND to Tetris I & II (computer architecture) (IDC Herzilya)
- Competitive Programmer's Core Skills (SPSU)

Data Science

- Functional Programming Principles in Scala (EPFL)
- Parallel Programming in Scala (EPFL)
- Big Data Analysis in Scala and Spark (EPFL)

Mathematics

- Linear Algebra (Imperial College London)
- Multivariate Calculus (Imperial College London)

## Experience

**Jun 2019 – Sep 2019**

**Data Scientist (Intern)**

*Inzura AI*

Increased monthly active users by $> 20\%$ by building a Bayesian SMS sender in Python and SQL, meeting a KPI which secured an important client contract

Built deep learning model with Keras that reduces trip processing time from 7s to 0.05s, which made possible a new revenue vertical for the company

Deployed distributed Apache Spark infrastructure and performed Big Data analysis with Scala on ~85 million data points used to assign users more accurate risk ratings

**Jun 2018 – Aug 2019**

**Blockchain Developer (Intern)**

*Infocomm Media Development Authority of Singapore (IMDA)*

Wrote a research paper on blockchain interop protocols and presented it to senior management

Created a fully-automated blockchain demonstration of supply chain management:

- Real-time blockchain visualisation using JavaScript and Canvas
- IoT sensor integration to update asset location data on Hyperledger blockchain
- QR-code based asset tracking with Node.js

**Jun 2017 – Aug 2017**

**Software Engineer**

*Imcomp International*

Greatly increased firm efficiency (75% less time taken to generate reports, 300 engineer hours saved per month) by developing bespoke building inspection software (Electron, Vue.js, JavaScript)

| | |
|---|---|
| **Jan 2017 – May 2017** | **Venture Capital Analyst (Intern)** |
| | *iGlobe Partners* |
| | Co-wrote 2 papers recommending investment; senior management accepted both recommendations and made Stage B investments |
| | Developed more powerful version of Microsoft Mail Merge in Python that automates away 90% of human errors and saves 50% time when sending mass mailers |
| **May 2016 – Sep 2017** | **Python Programming Tutor (Volunteer)** |
| | *Ulu Pandan Stars* |
| | Taught a team of underprivileged children Python and led them to win 3rd (amongst ~100 participating teams) in national hackathon CodeXtreme |
| **Feb 2015 – Dec 2016** | **Soldier (Conscript)** |
| | *Singapore Armed Forces (SAF), HQ Army Medical Service* |
| | Developed the Army's first item tracker and SMS reminder service with React and Node.js: |
| | • Won second prize in the Army Annual Innovation Competition<br>• Won Best Soldier of the Month out of ~3000 soldiers |

## Working Papers

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|---|---|
| **2019** | "Accounting for Travel Times in Estimating Political Dislocation" |
| | *with Nicholas Eubank and Jonathan Rodden* |
| **2019** | "Using human geography to build a more meaningful compactness measure for automated districting algorithms" |
| **2019** | "Can freeform communication increase the rate of Pareto-efficient outcomes in repeated games?" |

## Honors and Fellowships

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|---|---|
| **Oct 2019** | Postmaster |
| | *Major college scholarship awarded for sustained academic excellence* |
| **Aug 2019** | Raff Prize |
| | *Awarded for best second-year Economics performance in my college* |
| **Oct 2018** | Exhbitioner |
| | *Minor college scholarship awarded for good performance in the first year* |
| **Aug 2018** | Sam McNaughton Prize |
| | *Awarded for top score in Philosophy in the PPE first-year exams* |
| **June 2018** | Quantitative Political Essay Prize |
| | *Awarded to the best quantitative essay of my Oxford politics cohort (~300 students)* |
| **Dec 2017 – present** | Fowler Prize(s) |
| | *Awarded for First-class performance in termly exams, awarded 7/7 terms* |
| **Sep 2017** | National Infocomm Scholarship |
| | *Full-ride undergraduate scholarship awarded to promising Singaporean students by the Infocomm Media and Development Authority (IMDA), a Singaporean statutory board. Awarded on the basis of academic excellence, demonstrated interest in tech, and a will to serve the nation.* |