# ZHONGYUAN LYU

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## EDUCATION

**University of Michigan, Ann Arbor** September 2017 - Present
M.S. in Applied Statistics, Overall GPA: 3.782/4

Related courses (PhD level):
Probability Theory (in progress), Advanced Inference II (A),
Multivariate and Categorical Data Analysis (A),
Programming and Numerical Methods in Statistics(A), Large Sample Theory (A-)

**Fudan University** September 2013 - June 2017
B.S. in Statistics, Overall GPA: 3.42/4

Related courses:
Probabilty Theory and Mathematical Statistics (A), Statistical Inference (A)

**University of Warwick** September 2015 - December 2015
Undergraduate Overseas Exchange (UIOA-EOS)

## RESEARCH EXPERIENCES

**Adaptive Latent Class Regression Modeling on Childhood Pneumonia Etiology**
May 2018 - Now
*Researcher in Department of Biostatistics under Zhenke, Wu* *University of Michigan, Ann Arbor*

- Modified the iterative re-weighted least square part of the methodology of Generalized Additive Model Selection using C and R.
- Implemented the Distributed Multinomial Regression using R.
- Extended the method to multinomial logistic case using Poisson approximation.

**Applying Latent Class Model to Psychometrics Data**
March 2018 - Now
*Researcher in Department of Statistics under Gongjun, Xu* *University of Michigan, Ann Arbor*

- Implemented the algorithm of estimating Q-matrix in latent class model based the maximum likelihood estimation by EM algorithm using R.
- Improved the speed of the algorithm by using stochastic EM algorithm.

**Exploration in Predicting Outcomes of NBA Games**
January 2017 - June 2017
*Dissertation of Undergraduate under Juan, Shen* *Fudan University*

- Designed and developed a program that using web crawling technique to fetch the team-level STATS for each game from NBA official website using Python.
- Applied classic linear regression and logistic regression on the above dataset using R.
- Applied Group-Lasso method for both regressions to do the variable selecting for both linear and logistic cases using R.
- Simulated the pattern of NBA playoffs to predict the championship by probability using the regular season STATS using Python.

**Simulation Study of Bundesliga Season Outcomes**
January 2016 - June 2016
*Researcher under Peiwen,Yu* *Fudan University*

- Applied dimension reduction technique to formulate the predictors for regression.
- Applied Bayes multiple logistic regression and simulation (posterior sampling) to predict teams qualified for the UEFA Champions League based on previous Bundesliga teams data using Python.

## INTERNSHIP EXPERIENCES

**Game Operation**
July 2016 - August 2016
*Tencent* *Shanghai*

- Followed up analysis on competitive products.
- Independently designed and wrote user questionnaires
- Collected and cleaned research data, analyzed and wrote data reports.

**Audit Department**
July 2015 - September 2015
*Ernst & Young* *Shanghai*

- Visited and interviewed the participating enterprises of Fudan - E&Y Most Potential Enterprise Contest Awards & Extracurricular Activities.

## SKILLS

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|---|---|
| **Computer Languages** | Pascal, C Language, SAS, R, Julia, Stata, Python, Mathematica, Matlab, Stata, SQL |
| **Softwares** | Photoshop, Premiere, Flash, Office |