

# NICK(ZHIYONG) HUANG

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## Highlights of Qualifications

- Agile methodologies and excellent team-working skills, with effective communication skills
- Technological aptitude of professional project management software including Python, R language, and MS Office (Excel, Outlook, Access, Word, PowerPoint)
- Deep understanding of analyzing and integrating qualitative data with quantitative data by professional mathematical modeling
- Ability to parse through large amounts of data into simplified visuals and communicate it in an understandable way for diverse audience
- Quick learner and highly motivated individual that always seeks the best possible solution
- Solid analytical and quantitative problem-solving and design thinking skills
- Ability to work professionally with extensive confidential information.

## Education

Honours Bachelor of Science – Mathematics and Its Applications

University of Toronto, St. George Campus, September 2017 to April 2021

## Award

COVID-19 Student Engagement Award, June 2020

- Project title: *Quantifying effects of community based public health measures in controlling COVID-19 epidemics: a comparative modeling study in China, Iceland, Italy and Canada*
- Awarded to limited number of students in the University of Toronto who were working in a project that contribute to building and fostering a global community during the pandemic. <https://global.utoronto.ca/u-of-t-covid-19-student-engagement-award-winners/>
- Under the supervision of Dr. Xiaolin Wei, assist with professional research on the modelling for the COVID-19 pandemic. Communicated with various research teammates and collected data from public sources using Python and R.

## Publications

Geographic disparities in access to hospital care in Ontario, Canada: a spatial coverage modelling approach. First author: Dr. Erjia Ge

- Listed as the co-author
- Peer-reviewed accepted paper by BMJ Open in Jan 2021

Exploring Effects of Sociodemographic inequities in Greenness Accessibility on the Development of Allergic-related Respiratory Diseases in Children, Ontario. First author: Dr. Erjia Ge

- Listed as the second author.

- Poster presentation in the 32th Annual Conference of the International Society for Environmental Epidemiology (ISEE), August 2020, by Dr. Erjia Ge.(E-POSTER NO: P-0275)  
<https://isee2020virtual.org/wp-content/uploads/sites/122/2020/08/ListofEposters.pdf>

## Research Experiences

### MATD92: Mathematics Project in Mathematics Education

Department of Mathematics, University of Toronto, Jan 2021 – Present

- Under the supervision of professors Camelia Karimian Pour and Sohee Kang, conducting quantitative educational research in university mathematics.

### Research Assistant

Dalla Lana school of public health, University of Toronto, Aug 2019 - Present

- Under the Supervision of Dr. Erjia Ge, conducting statistical analysis on population health indicators and covariates at the individual level and comprising reports based on analysis.
- Assisting with professional research of travel time estimation by applying multiple software and modellings methodologies including ArcGIS Pro, AccessMod 5, STEM, and R language.
- Specifically using ArcGIS Pro for large geocoding and web map development.
- Creating applicable approaches to navigate databases or templates in programs such as Excel which others can use to work through information and data mining.
- Visualizing data for Canadian COVID-19 modelling research study.

## Teaching Experiences

### Teaching Assistant:

Math Department, University of Toronto, Sep 2019 to Present

- Courses:
  - **MATB42: Techniques of Calculus of Several Variables II**, under the supervision of Professor *Xiao Jie* in the Scarborough campus, Jan-Apr 2021
  - **MATB61: Linear Programming and Optimization**, under the supervision of Professor *Kai Ye* in the Scarborough campus, Jan-Apr 2021
  - **MAT337: Introduction to Real Analysis**, under the supervision of Professor *Regina Rotman* in the St. George campus, Sep-Dec 2020
  - **MATB24: Linear Algebra II**, under the supervision of Professor *Camelia Karimian Pour* in the Scarborough campus, Sep-Dec 2020
  - **MATB44: Differential Equation I**, under the supervision of Professor *Michael Goldstein* in the Scarborough campus, Sep-Dec 2020
  - **MAT235: Multivariable Calculus**, under the supervision of Professor *Nara Jung* in the St. George campus, Sep 2019 - Apr 2020
- Description of Duties (Math courses):
  - Created lesson plans and run weekly tutorial sections for students to better understand the course material.
  - Collaborated with professors and colleagues regarding their research and understanding in the interest of generating new academic lines of inquiry.
  - Evaluated students' achievement and assessed students' work within assigned courses.

- Used various well-designed instructional material including multimedia presentations and current interactive technologies, focusing primarily on experiential and project-based learning.
- Supported students' engagement, awareness of course objectives, approach, and evaluation techniques.
- Created and invigilated sessional quizzes, term tests, and final exam, which empowered students to think critically about coursework and its applications.

#### School Visit, Summer camp and Saturday Program Classroom Assistant

Math Department Outreach, University of Toronto, April 2018 to Present

- Main topics included Cryptography, set theory, Math Logic, what is pi, Geometry, Elementary Algebra, etc.
- Assisted with math teachers to engage students in deep learning through mathematical games and hands-on activities while providing intuition and examples in class.
- Encouraged students' participation by connecting mathematical concepts and procedures to everyday situations.
- Communicated mathematical thinking and inquiry through visuals, written work, and speaking.
- Set rigorous, concrete and individualized goals for students to achieve.
- Promoted engaging instructional strategies and student rules through extra-curricular and co-curricular activities and direction.

#### Deep Academic Councillor

Engineering Outreach, University of Toronto, Jul 2019

Course Name: "From Lenses to Lasers: The Science and Engineering of Optics"

- Assisted instructors with classes and prepared course material and handouts while monitoring and tracking attendance.
- Supporting DEEP students with the physics labs in optics, lasers and electric circuit.
- Collected student's data from lab, analysed and recognized potential mathematical error for the formula provided in the handout.
- Observed, identified and suggested possible approaches to students' problems within the lab.

## Other Experiences

### Adult Program Assistant

Student Family Housing, University of Toronto; Dec 2018 to April 2019

- Supported in promoting, advertising and creating registration opportunities.
- Customer service experience of working in culture diversity environment.
- Assisted in making arrangements for the overall adult programs including booking space, marketing, taking attendance and conducting assessment of overall program efficiency.

### Special Event Assistant & Children Program Assistant

Student Family Housing, University of Toronto; May 2018 to Dec 2018

- Maintained and created bulletin boards and information flyers.
- Assisted with the planning, coordination, and implementation of daily activities, trips and social events within the regular drop-In Centre at 30 Charles Street West, Student Family Housing.

### Events Planning, Director, Backstage Manager (3 Years)

Events: Karaoke Contest, Chinese New Year Gala, at Dr. Norman Bethune C.I. 2014-17

- Assisted in event planning, scheduling, rehearsing, directing, script writing.
- Conducted performance report analysis, estimated potential attendance and budgeting by research and surveys.

### TDSB Creates Art & Film Exhibition

June 2017 Toronto District School Board, April.2017

Project Name: "Change Takes Time"

My Role: Director, Cinematographer, Editor Theme of the Year: Change

- Assisted students with creating films with a given theme at their own school with essential advises and supports.

## Knowledge and Skills

- **Programming Languages:** Python, MATLAB, and R
  - Experience extracting various datas from public source and conducting statistical analysis using python and R.
- **ArcGIS:** Experienced with *Geographic Information System* on working with maps and visualize data sets, which developed solid skills in geocoding, web map development including big data management.
- **AccessMod 5:** Used the software *World Health Organization* on modeling how the physical accessibility of existing facilities in regard to the target population, which was used to statistically estimate baseline travel time. Experienced with both AccessMod 5 and ArcGIS to further the analysis for a specific research of the accessibility to nearest greenness, under the direction of professor Erjia Ge in the Dalla Lana school of public health of the university of Toronto.
- **Data Analysis and Machine Learning:** Completed the reading course APM496 with an overall course grade of A+ on data science with Professor Luis Seco in the math department at the University of Toronto, with emphasizing contents including model formulation, feasibility of learning, regression, neural networks, support vector machine, and quadratic programming.
- **Linear and non-linear Optimization:** Solid understanding of linear and non-linear optimization along with various optimization methods, i.e., simplex method and the method of steepest descent. Completion of the course APM236: Application of linear programming and APM462: Nonlinear Optimization with both final grades of A+.
- **LaTeX:** *Document Preparation System* for publication of scientific documents. Experienced with preparing class notes and reports using LaTeX.
- **Mathematical reasoning:** Solid skills on applying theoretical knowledge of mathematics on practically solving real-life problems. Experienced with modelling and interpreting the outcomes using concepts of Topology.