

RIMA CAO

(YINING CAO)

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EDUCATION

University of Michigan, Ann Arbor

Master of Information Science, Big Data Analysis

Ann Arbor, MI
September 2019 – now

Tsinghua University

B.E. in Environmental Science and Engineering

Minor in Computer Science

Beijing, China

September 2015 – June 2019

- Summer intern at Carnegie Mellon University, Human Computer Interaction Institute (Pittsburgh, PA)

RESEARCH EXPERIENCE

University of Michigan, Ann Arbor

Vocal Shortcut: Implementing Vocal Shortcuts in Photoshop

Data Manipulation | Natural Language Processing

October 2019 – Now

Director: Eytan Adar, Associate Professor

- Analysis commands from Photoshop software using *Spark and MapReduce*
- Phonetic encoding and words clustering using *Machine Learning* Algorithms
- Identify the optimal words set for vocal shortcuts.

Tsinghua University

Identification of heavy metal concentrations in soil using remote sensing and machine learning

Machine learning | Large-scale geo-data processing | Literature review

November 2018 – June 2019

Director: Deyi Hou, Associate Professor

- Used *ArcGIS and Python* for high resolution remote sensing data mapping and wrangling
- Used multiple *machine learning* methods for soil metal concentration prediction
- *Literature review* for current soil metal concentration mapping methodology

Tsinghua University & Carnegie Mellon University

“MessageOnTap”(“Glue”): Connecting Conversations with Mobile Apps for Task Suggestions

Feature extraction | Data analysis | Front-end design and programming

September 2018 – January 2019

Director: Fanglin Chen, Ph.D Researcher

- Used *python* for *extracting features* in UI pages
- Implemented *machine learning algorithms* to differentiate screenshots by function
- *Designed* crowd-facing website to solicit personal conversation screenshots
- Used *JavaScript/html* to implement front-end developing for the crowd-facing website

Carnegie Mellon University, Human Computer Interaction Institute

“MoTurk”: A personal data transaction platform under privacy protection mechanism

Hierarchical data model construction | System design | Prototyping

June 2018 – October 2018

Director: Fanglin Chen, Ph.D Researcher

- Conducted *literature review* over more than 100 academic papers to *identify the taxonomy* of personal data usage on mobile phone
- Proposed a three-level hierarchical taxonomy to map out the software architecture of a personal data market
- *Iterative system design and prototyping* for “MoTurk” mobile app and web frontend

Tsinghua University, School of Environment

Bacterial communities in forest soils of different elevations: diversity, structure, and potential impacts on greenhouse gas emission

Data analysis | Data visualization

January 2018 – September 2018

Director: Xuehua Liu, Associate Professor

- Analyzed *pyrosequencing bio-genetic data with R* to do micro-organic clustering and calculate greenhouse gas emissions
- *Data visualization with R* to show functional difference and bacteria distribution in different altitude

Tsinghua University, School of Environment

Land Use Regression Modeling of PM2.5 Concentrations with Different Interpolation Methods

Large scale geo-data processing | Data visualization

February 2017– June 2017

Director: Zongguo Wen, Professor

- **Conducted automatic city-scale geographic data** processing with python and ArcGIS
- **Data visualization dynamically with JavaScript** to show the distribution of PM2.5 in Beijing, Hebei and Tianjin

SELECTED AWARDS AND HONORS

First Prize, 2017 National Mathematical Modeling Contest	2017
Third Prize, Microsoft AI Hackathon Competition	2017
Third Prize, Beijing College Physics Competition	2016
Silver Prize, Summer Practice of Tsinghua University	2017, 2016
Outstanding Student Leader of Tsinghua University	2016
Veolia Special Scholarship	2017
Scholarship for Comprehensive Excellence	2018, 2017, 2016
Scholarship for Academic Excellence	2018, 2017, 2016
Scholarship for Social Practice Excellence	2017, 2016
Scholarship for Social Work Excellence	2018, 2016
The Tsinghua University Zheng Geru Scholarship	2018

INTERN EXPERIENCE

Asian Development Bank/ Regional Knowledge Sharing Initiative

Beijing, China
March 2019 – August 2019

- Iterative design of official website for regional knowledge sharing
- Making Infographics

Netease / Front-end development

Beijing, China
March 2018 – June 2018

- Participated in “Image Template” development using JavaScript and HTML
- Front-end development of an internal employment managing system

PUBLICATION & PATENT

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- Liuwei Wang, Yining Cao, Yong Sik Ok, Filip Tack, Joerg Rinklebe, Deyi Hou. Remediation of mercury contaminated soil, water, and air: a review of emerging materials and innovative technologies. *Environment International*(2019, sent to production)
 - Wanlong Sun, ZhouYuan Li, Yining Cao, Xuehua Liu. Bacterial communities in forest soils of different elevations: diversity, structure, and potential impacts on greenhouse gas emission. *Ecology* (2019, under review)
 - Yining Cao, (2013). An Intelligent Baby Carrier with Environmental Monitoring, Anti-theft and Automatic Braking Function. ZL 2013 10331617.7.
 - Yining Cao, (2011). A New Bottle Warming and Heating Device. ZL 2011 2 0297639.2.
 - Yining Cao, (2011). A Roll Curtain with Windproof Fixing Function. ZL 2011 2 -207640.5.
 - Yining Cao, (2010). A Solar Powered Automatic Rotating Hanger. ZL 2010 2 0142649.4.
 - Yining Cao, (2009). An Infusion Holder with Warming Function. ZL 2009 2 0202459.4.
 - Yining Cao, (2007). A New U Disk with Telescope Structure. ZL 2007 2 0105434.3.

ADDITIONAL INFORMATION

Extracurricular Activities

Leadership

- Hosted the 2nd Model Climate Change Conference in Tsinghua October 2017
- Held Green Talk Forum with TED in Tsinghua November 2017
- President of Rural International Student Exchange (RISE) Association May 2017 – January 2018

Academic Interests

- Participated in Microsoft AI Hackathon Competition December 2017
 - Won third prize with project, Garbage Collection Plan: develop an auto-classification trash-bin using Azure
- Organized a team with 23 students to build water filters to remove Arsenic from water supply in Liangjiabu, Shanxi Province July 2017
 - Work covered by China Youth News and China Science Net

Design & Art

- UI design for “MessageOnTap”, an intelligent assistant app for efficient online communications July 2018
- Drew a popular science picture album: *What’s Energy Net?* to introduce the principles of Energy Interconnection August 2016

Athletic

- Three-year Tsinghua University Aerobics team champion 2016 & 2017 & 2018

Computer and Language Skills

- Proficient in Python, Familiar with JavaScript and R;
- Proficient in Photoshop, After Effects, Sketch
- Mandarin (Native), English