

# Zhanwen Chen

☎ +1 (315) 289-2006 | ✉ phil.zhanwen.chen@gmail.com | 📍 zhanwenchen | 🌐 zhanwenchen | 📱 zhanwenchen | 🎓 Zhanwen Chen

## Education

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### Vanderbilt University

M.S. IN COMPUTER SCIENCE (THESIS TRACK)

Nashville, TN

Jan. 2018 - Dec. 2019

- *Thesis:* Noise Suppression in Ultrasound Beamforming Using Convolutional Neural Networks
- *Advisor:* Dr. Maithilee Kunda
- *Area:* Intelligent Systems

### Vassar College

B.A. IN ECONOMICS; MINOR IN COMPUTER SCIENCE

Poughkeepsie, NY

Aug. 2012 - Dec. 2016

## Online Courses & Certificates

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### Microsoft Certified: Azure Fundamentals

MICROSOFT

Certificate

Nov 2020

### Natural Language Processing Nanodegree

UDACITY

Online Course

July 2020

### Full Stack Web Developer Nanodegree

UDACITY

Online Course

May 2017

## Research Experience

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### AIVAS Lab (PI: Dr. Maithilee Kunda), Vanderbilt University

GRADUATE RESEARCH ASSISTANT (PART-TIME, 10 HRS/WEEK)

Nashville, TN

Sep. 2018 - Dec. 2019

- Developed an automated crowdsourcing pipeline with Python, HTML/CSS, JavaScript, and AWS Mechanical Turk
- Developed a logic production system to model social question answering using Python and Prolog
- Created a video Q&A dataset to teach social skills to high school students on the autism spectrum and train AI systems

### BEAM Lab (PI: Dr. Brett Byram), Vanderbilt University

GRADUATE RESEARCH ASSISTANT (PART-TIME, 10 HRS/WEEK)

Nashville, TN

Mar. 2018 - Dec. 2019

- Implemented a machine learning pipeline to suppress noise in ultrasound beamforming in the frequency domain with PyTorch and SciPy
- Developed a novel method to conduct random neural architecture search (NAS) with Prolog constraint satisfaction
- Analyzed neural networks' effect on beamforming and ultrasound imaging quality with Python (Jupyter Notebook)
- Developed an evaluation (A/B test) pipeline for experts to rank ultrasound images using Pandas and jsPsych

## Work Experience

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### Vanderbilt Institute for Clinical and Translational Research

APPLICATION DEVELOPER (FULL-TIME, 40 HRS/WEEK)

Nashville, TN

Jul. 2020 - Present

- Develop Java, Shell, and SQL applications for data ETL pipelines to support research projects in Natural Language Processing, Computer Vision, and medical research
- Design cloud architectures on Microsoft Azure to migrate existing data pipelines

### Basil Systems Inc.

FULL-STACK DEVELOPER AND DATA SCIENTIST (FULL-TIME, 40 HRS/WEEK)

Nashville, TN

Jan. 2020 - Jul. 2020

- Developed a faceted search feature using Python, NodeJS, ReactJS, and AWS Elasticsearch
- Developed a data ingest pipeline with Python, MongoDB, MySQL, and AWS SQS/S3/ElasticSearch
- Used Agile Methodology (Jira Scrumban) and CD/CI (CircleCI) checks in Github repositories
- Sourced and analyzed public regulatory datasets from the FDA and other HHS agencies with Python (Jupyter Notebook)

### Five Colleges Inc.

WEB DEVELOPER (FULL-TIME, 40 HRS/WEEK)

Amherst, MA

Jan. 2017 - Dec. 2017

- Developed and maintained web applications to support online educational programs
- Developed a Drupal frontend tool using NodeJS to batch create data types and view templates
- Created a DOM crawler using Python and JavaScript to inventory assets

## Pitney Bowes Inc.

SOFTWARE ENGINEERING INTERN (FULL-TIME, 40 HRS/WEEK)

Shelton, CT

Jun. 2016 - Aug. 2016

- Developed an API endpoint to deserialize and store event XML data from PB products around the globe using C# and Microsoft SQL Server
- Developed a configuration application that sets up Wi-Fi connections between PB mail printers and tablets using REST APIs, C#, and Java

## Pitney Bowes Inc.

COMMODITY SPECIALIST INTERN (FULL-TIME, 40 HRS/WEEK)

Danbury, CT

Jun. 2015 - Aug. 2015

- Created an automated vendor data collection pipeline with a proprietary compliance database software

## Nestlé Waters North America

IS/IT INTERN (FULL-TIME, 40 HRS/WEEK)

Stamford, CT

Jun. 2014 - Aug. 2014

- Developed a data analytics pipeline that automated sourcing, staging, visualization, and regressions using Microsoft SQL Server, SSIS, and R

## Publications

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Citations: 2; H-index: 1, i10-index: 0 (Google Scholar, November 2020)

### Characterizing Datasets for Social Visual Question Answering, and the New TinySocial Dataset

IEEE ICDL-EpiRob, Valparaíso, Chile/Zoom

ZHANWEN CHEN, SHIYAO LI, ROXANNE RASHEDI, XIAOMAN ZI, MORGAN ELROD-ERICKSON, BRYAN HOLLIS, ANGELA MALIAKAL, XINYU SHEN, SIMENG ZHAO, AND MAITHILEE KUNDA

October, 2020

### Compact Convolutional Neural Networks for Ultrasound Beamforming

IEEE IUS 2019, Glasgow, UK

ZHANWEN CHEN, ADAM LUCHIES, BRETT BYRAM

October, 2019

## Other Conferences

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### Towards a New Technology-based Theory of Mind Intervention for Adolescents on the Autism Spectrum

Vanderbilt Kennedy Center Science Day, Nashville, TN

ROXANNE RASHEDI, MANDY ZI, SHIYAO LI, CHRIS KETCHUM, ZHANWEN CHEN, CHRISTINE KIM, TENGJU MA, MAITHILEE KUNDA

September, 2019

## Scholarships, Prizes, and Honors

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Aug. 2019 **Recipient**, Vanderbilt University Graduate Student Travel Grant to Present Research

Nashville, TN

Jul. 2016 **Recipient**, Inroads Scholarship Award

Hartford, CT

Dec. 2015 **Finalist**, Vassar College Concerto Competition for Soloists

Vassar College

Mar. 2015 **3rd Place**, Area Contest, Toastmasters International Speech Contest

Poughkeepsie, NY

## Professional Associations

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Since 2014 **Student Member**, The Institute of Electrical and Electronics Engineers (IEEE) - Computer Society (CS)

Since 2016 **Student Member**, Association for the Advancement of Artificial Intelligence (AAAI)

Since 2014 **Student Member**, Association for Computing Machinery (ACM)

## Extracurricular Activity

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### Repre Repo

EDITOR

Medium

08/2019 - Present

- Publish and edit technical articles on my Medium blog publication that focuses on Computer Science and applications

### Vanderbilt Robotics Competition Team

MEMBER

Vanderbilt

01/2018-05/2019

- Implemented autonomous navigation software for our team's competition robot with Java, C++, and ROS

## Programming Skills

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**Programming Languages** Python, JavaScript, Matlab, C#, Java, Prolog, Shell, SQL, MongoDB, C, C++,  $\LaTeX$

**Tools and Framework** AWS, Linux, Flask, ROS, TensorFlow, PyTorch, Keras, OpenCV, NumPy, Jupyter, NodeJS, ReactJS, Elasticsearch

**SDLC Tools** Assembla, Jira, Git, Confluence, CircleCI