

# Chen, Zihan

Electrical and Computer Engineering, University of Toronto

Email: [zihan.chen@mail.utoronto.ca](mailto:zihan.chen@mail.utoronto.ca)

Tel: (647)-786-0368

Homepage: [zihanchen-ece.github.io](http://zihanchen-ece.github.io)

## Education Information

**University of Toronto**, Master of Applied Science 09/2015 - Present

RA at Signal Integrity Laboratory | IEEE Student Member | Overall GPA: 4.0/4.0 | Supervisor: Piero Triverio  
Research Area: Computational Fluid Dynamics | High-performance & Parallel Computing

**Zhejiang University**, Bachelor of Engineering 09/2011 - 06/2015

Information Engineering | Ranking: Top 5% of 149 students | Overall GPA: 3.85/4.0

Research Area: Computer Vision | Applied Electromagnetism

## Technical Skills

Language: C/C++, python, MATLAB, html/css

## Research & Project Experiences

### University of Toronto

#### Master's Thesis: Computational Fluid Dynamics about Vascular Modeling and Simulating

- Creating the 3D reconstructing model of cardiovascular from its MRI images by vmtk library. The geometry files contains vessel wall, in/outlet surfaces and central line.
- Generating unstructured tetrahedral mesh from the geometry files. The Delaunay tetrahedralizations and boundary conforming Delaunay meshes are generated by TetGen.
- Setting proper excitation source, initial data and boundary conditions. Simulating blood pressure and velocity of the cardiovascular vessels by solving the incompressible Navier-Stokes equations via Finite Element Analysis.

#### Course project: Solving Quasi-static Electromagnetic Problem on Transmission Line

- Creating the 2D geometry and mesh of Transmission Line via gmsh.
- Set proper boundary conditions from the mesh file. Applying excitation source and initial data to simulate EM field distribute on the Transmission Line by solving Maxwell's equations via Finite Element Analysis.
- Retrieving the parameters of Transmission Line by integrating the value of simulated EM field result. Comparison of the result with COMSOL shows my FEM solver has good accuracy.

#### Course project: Simulating Damped Wave Equation using Parallel Computing

- Simulating one-dimensional damped wave with MPI and OpenMP, and comparing their parallel scaling.
- Using GSL library to accelerate sparse matrix manipulation and PGPLOT library to show the graphs, while output in NETCDF parallel routines.

### Zhejiang University

#### RA at National Key Laboratory of Modern Optics Instrumentations

09/2014 - 06/2015

#### Students' Innovative Project of Zhejiang Province: High Resolution Stereoscopic Display System

- Video streaming Face Recognition by Haar cascading classifier and AdaBoost algorithm. Using Integral Image to accelerate processing.
- Eyes Tracking by Teaching-Learning-Detecting Algorithm.
- Stereoscopic Visual Reconstruction for auto stereoscopic display via opengl.

#### Course project: Compressing Sensing for Single-camera Imaging System

- Single camera for imaging collection with sparse matrices.
- Image reconstruction via compressing sensing algorithm.

### RA at Center for Optical and Electromagnetic Research

01/2015 - 06/2015

#### Bachelor's Thesis: Polarization Converting Metasurface Design for Antenna Applications

- Design of a metasurface for converting incident wave from linear to circular and vice versa.
- Design of a broadband circular antenna for polarization conversion.
- Design of an anisotropic Zero Refractive Index lens for gain improvement

### University of California, Davis

#### RA (summer intern) at Davis Adaptive RF Technology Lab

06/2014 - 09/2014

- Designing, analyzing and optimizing a dielectric THz inter-chip channel with low loss and broad bandwidth.
- Designing, analyzing and optimizing a broadband antenna on single silicon substrate.

For more project information, visit my website: [zihanchen-ece.github.io](http://zihanchen-ece.github.io)