

Chen, Zihan

Electrical and Computer Engineering, University of Toronto

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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 | Computer Graphics | High-performance 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: Python, C/C++, MATLAB, Verilog, 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 system from its MRI images by vmtk library. The geometry files contain vessel wall, in/outlet surfaces and central line.
- Generating unstructured tetrahedral mesh grid 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 the distribution of blood pressure and velocity in the cardiovascular system by solving the incompressible Navier-Stokes equations via Finite Element Analysis. Implementing the solver with MPI for parallel computing.
- Automatically patient-specific measurement of pressure gradient. Stream tracing of the blood velocity via vtk and paraview library. 86% of the simulated results show great consistency with the clinical data.

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

- Creating the 2D geometry and mesh of Transmission Line via gmsh.
- Setting proper boundary conditions from mesh file. Applying excitation source and initial data to simulate EM field distribution 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 the FEM solver has great accuracy.

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.

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.

Teaching Assistantship Experiences

University of Toronto

- CSC 180 Introduction to Computer Programming (Fall 2016)
- ECE 253 Digital & Computer System (Fall 2016)

For more project and personal information, visit my website: zihanchen-ece.github.io