# Ni Wode

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## EDUCATION

### COLUMBIA UNIVERSITY
B.S. in Computer Science
2016.09 - present
New York, NY
Major GPA: 4.0
Cum. GPA: 3.94
Dean's list

### DICKINSON COLLEGE
B.S. in Computer Science
2013.09 - 2016.05
Carlisle, PA
Major GPA: 4.0
Cum. GPA: 3.93
Departmental Honor
Summa cum laude
Dean's list every semester
John Montgomery Scholarship
Pi Mu Epsilon
Upsilon Pi Epsilon
Alpha Lambda Delta

## COURSEWORK

Compiler
Computer Graphics
Operating Systems
Advanced Programming
Database Systems
Artificial Intelligence
Computer Networks
Programming Languages
Theory of Computation
Computer Architecture
Data Structures

## SKILLS

### PROGRAMMING
Java • C • C++ • OCaml
Haskell • SQL • Bash
LaTeX • Scheme • Lisp

### TOOLS
Git/GitHub • Shell • Vim
Eclipse • XCode • Visual Studio
Android Studio • GNU make

### LANGUAGES
- Native: Chinese
- Proficient: English
- Elementary: Japanese

## RESEARCH

### PENROSE | Summer Research at Carnegie Mellon University
May 2017 - August 2017 | Pittsburgh, PA
Currently working on the Penrose project, in which we design and implement a new programming language that visualizes mathematics. See official site http://penrose.ink/ for more.

### CYBER AFFORDANCE VISUALIZATION IN AUGMENTED REALITY (CAVIAR) | Research at Columbia University
Jan 2017 - May 2017 | New York, NY
While working as a research assistant at Computer Graphics and User Interfaces Lab (CGUI), participated in Cyber Affordance Visualization in Augmented Reality (CAVIAR) project, in which we try to build an AR application that visualizes cyber affordance in indoor and outdoor environments. Learned Unity and Hololens development and investigated the construction of 3D models from GIS data.

### WHITEBOARD SCANNING USING SUPER-RESOLUTION | Honors Thesis
May 2016 | Carlisle, PA
A year-long Computer Vision research project, supervised by Prof John MacCormick(Advisor), Prof Timothy Wahls, and Prof Grant Braught. The project studies one application of a super-resolution algorithm: to compute a clear, scanned output given a low-quality video of a whiteboard. The work was presented on CCSCNE 2016 conference.

## PROJECTS

### RAYTRA | Project for Computer Graphics Course
Dec. 2016 | New York, NY
Implemented a ray tracer from scratch using C++ and OpenEXR. This renderer employs Monte-Carlo ray tracing and scene-wide acceleration using BVH-tree. The output images include features such as Blinn-Phong shading, reflections, refraction, and soft shadows.

### MATRIX PROCESSING LANGUAGE | In-course Project
Dec. 2016 | New York, NY
Designed a new domain specific language that focuses on matrix computations, and implemented a compiler in OCaml, which compiles source programs to LLVM IR. Implemented Conway's Game of Life in less than 30 lines using our language.

## WORK

### ASIAINFO | Summer Intern
May 2015 | Guangzhou, China
Participated in developing a web application that manages records of servers and applications. The system utilizes Struts and Spring frameworks, MyBatis, and Oracle Database.

### DICKINSON COLLEGE COMPUTER SCIENCE DEPARTMENT | Teaching Assistant and Lab Consultant
September 2014 – May 2016 | Carlisle, PA
TA for Introduction to Java II with Prof. Timothy Wahls during Spring 2016 Semester. Held evening help room sessions to assist students with homework and projects.