

# Clayton Rayment

cw.rayment@gmail.com | 970-402-3299

## EDUCATION

### RENSSELAER POLYTECHNIC INSTITUTE

#### MS IN COMPUTER SCIENCE

Expected Dec 2017 | Troy, NY

Department of Computer Science

GPA: 3.0 / 4.0

#### BS IN APPLIED PHYSICS

May, 2016 | Troy, NY

Conc. in Computational Astrophysics

Department of Physics, Applied Physics, and Astronomy

Dean's List (All Semesters)

GPA: 3.27 / 4.0

## COURSEWORK

### GRADUATE

Robotics I

Computer Operating Systems

Parallel Computing

Computer Graphics

Design and Analysis of Algorithms

Graph Theory

### UNDERGRADUATE

#### COMPUTER SCIENCE:

Data Structures

Programming in Java

Parallel Computing for Engineers

Foundations of Computer Science

Computer Organization

#### PHYSICS:

Quantum Physics I/II

Electromagnetic Theory

Theoretical Mechanics

Observational Astronomy

Astrophysics

## SKILLS

### PROGRAMMING

Fluent:

C/C++ • Python •  $\LaTeX$

Familiar:

Java • SQL • JS • LUA • Assembly

Extensions:

OpenCL • CUDA • OpenMP • MPI

### AMATEUR ASTRONOMY

Experience with several telescopes, tracking software, and imaging with DSLR, QSI 6000, and SBIG 800 series CCDs.

Used IDL for image data reduction, including asteroid tracking.

## EXPERIENCE

### RENSSELAER POLYTECHNIC INSTITUTE | GRADUATE TA

January 2017 – Present | Troy, NY

Graduate Teaching Assistant for Stars, Galaxies, and the Cosmos, and Intro to Astronomy and Astrophysics. Helped with course preparation and execution (Grading, proctoring, leading recitation).

### ACTION WORKS | ROBOTICS INSTRUCTOR

May 2015 – Aug 2015 | Longmont, CO

Taught elementary through middle school students robotics using the LEGO Mindstorms robotics platform. Used both NXT and EV3 kits, and facilitated a learning environment appropriate for the age group.

### WOODWARD INC. | ENGINEERING INTERN

May 2013 – Aug 2013 | Fort Collins, CO

Rewired, modernized, and documented industrial test stand. Read schematics, and diagnosed electrical systems.

## RESEARCH

### MILKYWAY@HOME | RESEARCHER

Aug 2014 – Present | Troy, NY

Worked with Dr. Heidi Newberg on MilkyWay@Home, a distributed computing project with a user base of over 20,000 active users, simulating dwarf galaxy tidal stream formation. Research focused on parallelizing large-scale n-body calculations to run on GPU compute devices using OpenCL.

## EXTRACURRICULAR

### RENSSELAER SPORTS CAR ASSOCIATION | PRESIDENT

Aug 2014 – Aug 2016 | Troy, NY

Presided over an institute-funded club which hosted autocross events and car meets on campus. Managed several officers in the club, as well as oversaw event planning and operation.

### RENSSELAER STUDENT AUTO SHOP | MANAGER

Aug 2014 – Present | Troy, NY

Managed shifts at a student-run on-campus auto shop. Helped customers diagnose, repair, and prevent future problems. Operation of heavy equipment such as a 10,000lb automotive lift, and machining tools was frequent. Large scale project planning and execution was also common.

## PROJECTS

### COMPETITIVE ROBOTICS

**VRC TEAM CAPTAIN** Captain of VRC team from 2008-2011. Qualified for, and attended World Championships during all three seasons. Received Build Award at World Championships for the 2011 season.

**AVC TEAM CAPTAIN** Captain of team competing in SparkFun's Autonomous Vehicle Challenge. Constructed 1/10 scale RC buggy capable of autonomous navigation using GPS, Compass, and tactile feedback.

### AUTOMOTIVE

**RACE ENGINEERING** Weight reduction, installation of safety equipment, including harnesses, roll bar, bucket seats, and fire mitigation. Multiple powertrain iterations completed, including individual throttle bodies, complete engine rebuild, and addition of forced induction. Construction, programming, and installation of ECU, followed by tune optimization for peak performance and reliability.

