

# Patrick Sandquist

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## Projects

### **RubyOff** (*Ruby on Rails, React.js*)

[GitHub](#) • [rubyoff.xyz](http://rubyoff.xyz)

A sandboxed Ruby platform that makes learning to code a fun and interactive process.

- Executes foreign Ruby code in a secure and controlled server sandbox
- Single-page React.js application built on a RESTful JSON Rails API
- Formats and highlights code by utilizing the CodeMirror library
- Nested associations create information rich pages

### **Sidewinder** (*Javascript*)

[GitHub](#) • [Live](#)

Snake with "twist"!

- Logs past scores to encourage replay
- Turbo mode changes the stepping interval when space bar is depressed
- Uses CSS transitions to add a new dimension to gameplay

### **ActiveRecord Lite** (*Ruby*)

[GitHub](#)

An ORM inspired by the functionality of ActiveRecord

- Utilizes Ruby's metaprogramming capabilities
- Translates Ruby commands into efficient SQL queries

## Skills

**Ruby**

**Ruby on Rails**

**Python**

**Javascript**

**jQuery**

**Fortran**

**SQL**

**HTML5**

**CSS**

**Git**

## Education

### **App Academy** (*San Francisco, California*)

8/15 – 11/15

Full-stack web development training program

### **University of St Andrews** (*St. Andrews, Scotland*)

8/10 – 6/15

MPhys (Honours) Astrophysics

Dissertation: *Nonlinear Oscillators and Dust Scale Heights in Protoplanetary Discs*

- Courses included: Computational Physics and Astrophysics, Monte Carlo Simulations, Bayesian Statistics, Lagrangian & Hamiltonian Dynamics
- Grants received: Student Staff Council Bursary (£450) & Summer Research Award (£500), Physics Trust Research Grant (£300)

## Experience

### **University of St Andrews** (*St. Andrews, Scotland*)

6/14 – 9/14

Summer Research Intern

- Modeled dust species condensation and sublimation with the ProDiMo package
- Monte Carlo techniques were used to iteratively solve equilibrium chemistry
- First team member to use the SciPy Python library for result visualization

### **Isaac Newton Group of Telescopes** (*La Palma, Canary Islands*)

6/13 – 9/13

Summer Research Student

- Wrote, tested, and optimized Python scripts for flat field automation on the Isaac Newton (INT) and William Herschel (WHT) Telescopes
- Reduced images to produce a color photometry catalogue of stars in M71