Peter Knipp

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EDUCATION

App Academy: Immersive software engineering course focused on full-stack web development **Apr 2020 - Nov 2020**
CT Department of Higher Education: Certification in teaching physics and mathematics at the secondary level **2010 - 2011**
University of Chicago: MS and PhD in theoretical solid-state physics **1984 - 1991**
Princeton University: AB in Mathematics **1980 - 1984**

EXPERIENCE

Accorded (fka Cerebrae): *fullstack engineer* **Nov 2021 - July 2024**

- Mainly frontend
- Specialized in graphics, including d3.js and home-made svgs

Miscellaneous Connecticut High Schools: *Teacher of Physics, Astronomy, and Mathematics* **Aug 2009 - Dec 2019**

- Designed personalized assignments through the use of WebAssign, Quest, ExamView, and Excel
- Created thousands of entries in the database of WebAssign (perl) and Quest (JavaScript) for classroom use

Christopher Newport University: *Professor of Physics, Computer Science and Engineering* **Aug 1992 - May 2009**

- Director of Computer Engineering Program and Faculty Senator (Secretary, Vice President, and Acting President)
- Largely in change of the undergraduate teaching laboratories, during which time I converted most of the primitive lab activities to those which use either computer-aided data-acquisition or computer-grading systems
- Pioneered my university's use of online homework systems (WebAssign)

WebAssign: *Contractor* **2001 - 2005**

- Created approximately 1,000 entries in their database of physics questions, each of which was a small perl script
- Tested approximately 1,000 entries in their database of questions which had been coded by others

Full-stack PROJECTS (mostly using React.js for frontend)

Pickup Sports: *clone of TeamReach, an app for organizing informal recreational sporting events* Live Site | Github

- Uses Node.js for backend, Bootstrap for tables, and Google maps for determining distance from user to each event

NetAssign: *clone of WebAssign, an online education tool for both faculty and students* Live Site | Github

- Uses Python for backend
- Uses cexprtk (a cython-wrapped C++ math package) to attain algorithmic randomization of questions

Weekend-tennis: *simple app for managing a private tennis group* Live Site | Github

- Uses Python for backend and AWS for storing user photos

TaskDragon: *clone of TaskRabbit* Live Site | Github

- Uses Node backend, Sequelize for ORM, and Pug templates for server-sided rendering

Front-end PROJECTS (mostly rendered with React functional components and hooks)

Rotating Body: *numerical solution of Euler's differential equations for torque-free motion* Live Site | Github
Traveling Salesman Problem: *classic computer-science problem extended to 3 dimensions* Live Site | Github
Quadratics Factorizer: *front-end app for an algebra student to practice solving a quadratic equation* Live Site | Github
Graphical Kinematics: *relates position, velocity, and acceleration in real-time with linear-algebra package* Live Site | Github
Colliding spheres: *uses Vue to render the motion of a collection of balls that obey physical laws* Live Site | Github

Back-end PROJECTS (each using classic algorithms to solve hard math problems and serving results via both json and html)

Live Site for all endpoints
Calculus and related topics calculated using Rust
Complex variables and factorization using Golang
Linear algebra and polynomial root-finding using Python

SKILLS

JavaScript, Python, Perl, Node, Golang, Rust, Fortran, Yew, React, Redux, Vue, HTML5, Pug, CSS3, D3, Superblocks, Express, Flask, Sequelize, SQLAlchemy, & PostgreSQL

PUBLICATIONS AND AWARDS

- Published approximately 60 peer-reviewed papers in the fields of physics, engineering, and science education
- Recipient of four prestigious math and physics awards, from the VA Academy of Sciences, Naval Research Lab, & ETS