Pedro Ramos Kobori — Software developer

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Skills

- **Programming**: Python, SQL, Excel, LaTeX, RegEx, Ruby, Julia, Assembly, SML, Racket, UML, Java.
- **Technologies**: Dash, NumPy, Pandas, TensorFlow, Docker.
- **Concepts**: Testing, APIs, Github, Data structures, software architecture, OOP, FP.
- **Web Development**: Plotly Dash, HTML, CSS, Github Actions, Javascript.

Projects

Productivity autotracker, Project Code.

- Implemented activity tracking logic and event categorization in Python to determine user productivity.
- Used SQL databases to keep track of user data, trends, settings and milestones.
- Made the interface and configuration using Plotly Dash, with easily configurable user settings.

Hack computer design and game implementation, Project Code.

- From a NAND gate abstraction and some emulation tools, I implemented the Hack computer software.
- Implemented the theoretical hardware architecture using HDL.
- Implemented an assembler, to transform assembly files into Hack files (binary code for the Hack platform).
- Implemented a translator, translates VM code (stack based operations) into assembly.
- Implemented a compiler, to compile Jack files into VM code.
- Finally, I implemented a Jack OS and a Jack game.

Event scheduler, Project Code.

- Implements an event scheduler using a recursive backtracking algorithm within a Dash web-based application.
- GUI was implemented using CSS and the Dash framework in the Julia language.
- Unit testing was done on all functionalities and special functions.

DNA sequence analysis using alignment and scoring matrices, Project Code.

- Implemented functions to create alignment and scoring matrices for quantifying similarity in 2 DNA sequences.
- Did statistical hypothesis testing with Z-scores of multiple local alignments with one random sequence.
- Implemented functions to quantify dissimilarity between 2 strings for spelling check using edit distances.

Computer network resilience analysis, Project Code.

- Analyzed the connectivity of a computer network by randomly disabling computers on the network.
- Compared the resilience of a provided graph and randomly generated ER and UPA graphs (DPA graph variety).
- Implemented and compared (time complexity) 3 algorithms for removing computers from the network.
- Analyzed how the largest connected component changed depending on the graph creation algorithm.

Bidimensional objects language interpreter, Project Code.

- Implemented an interpreter for a fictitious language created for manipulating bidimensional objects.
- Interpreter was implemented in Ruby (OOP) and SML (FP) to study paradigm differences.
- Utilized double dispatch, dynamic dispatch, pattern matching, subclassing and geometry.

Education

- Currently studying by the Open Source Society University (OSSU) computer science path. See earned certifications on my portfolio. The OSSU curriculum is a complete education in computer science using online materials. It is designed according to the curriculum guidelines for undergraduate degree programs in computer science, by IEEE.
- Native portuguese, fluent english: Cambridge Advanced English Level 2 Certificate in ESOL International.