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Nil Mamano

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Computer Science PhD looking to transition to industry. Strong problem-solving skills from solving hard algorithmic research problems, communication skills from collaborating with 16 co-authors, and solid CS fundamentals from teaching algorithms. Quick learner eager to dive into new technologies.

Education

PhD + Masters in Computer Science University of California Irvine, GPA 3.83/4 Sep 2015 – Dec 2019

B.E. in Computer Science Polytechnic University of Catalonia, GPA 3.8/4 (99th percentile) Sep 2011 – Jul 2015

Skills

Languages C++, C, Python, Java, Javascript, Typescript, Bash, HTML, CSS, SQL.

Tools Linux, Git, Github, React, Node.js, MongoDB, WebSocket, Oracle Grid Engine.

Experience

University of California Irvine

PhD Student Researcher scholar.google.bg/citations?user=LIuligEAAAAJ Sep 2015 – Dec 2019

Co-authored 9 peer-reviewed papers on algorithm design, including as main author in tier A conferences like ICALP and ISAAC. The papers describe new algorithmic improvements for problems in graph theory, computational geometry, and computational biology. For example: improved the runtime of the multi-fragment algorithm for Euclidean TSP from $O(n^2)$ to $O(n \log n)$.

Led a research project from inception to publication: came up with an original problem, engaged 3 colleagues to work on it, and collaborated with them to solve it and write a paper. We invented an algorithm for the knight's tour problem.

Teaching Assistant nmamano.com/cv/studentEvaluations.pdf Sep 2016 – Jun 2018

Presented 100+ sessions teaching algorithms to 50+ students, including guest lectures, with excellent student evaluations.

Championed the use of online automated grading to provide immediate feedback to the students and reduce the grading load. Led a study to measure the effect of automated grading (120 students split into experimental/control group).

Undergrad Researcher github.com/nmamano/SANA Feb 2015 – Jul 2015

C++, Bash, Oracle Grid Engine | Github (1600+ commits, 30+ collaborators) | Research (30+ citations) | Created SANA, a software to find alignments between biological networks by using a Simulated Annealing algorithm. Ran large-scale experiments in a computing cluster to optimize the algorithm and produce near-optimal alignments of PPI networks with 10k+ nodes and 100k+ edges in about an hour. Aligned networks with up to 100k nodes and 100 million edges.

Polytechnic University of Catalonia

Research Intern racso.cs.upc.edu/juezwsgi/about Feb 2014 – Sep 2014

Created 70+ exercises and exams for RACSO, a collection of online judges (automated grading tools) for CS courses.

C++ | Contributed to the backend of a judge: built the interpreter for a special language used by the users of the judge.

Projects

WallWars nmamano.com/wallwars Jul 2020 – Aug 2020

React, Node.js, WebSocket, MongoDB, Heroku | A 2-player online board game inspired by Quoridor. It has many of the features of online chess sites, like timers, watching past games, and a responsive design.

SANA 2.0 github.com/nmamano/SANA Apr 2020 – Jun 2020

C++ | Extended the SANA software (mentioned above) to enable alignment-finding between viruses. Refactored 20k+ lines of the codebase and added new features, allowing academic collaborators to run scientific experiments comparing SARS-CoV-2 to other viruses (currently underway).

ttl-cache github.com/nmamano/ttlcache Mar 2020

C++ (templates and C++17 features) | An efficient in-memory key-value cache that supports timeouts. It implements Redis' algorithm to remove expired entries and has an LRU eviction mechanism.

Graph Nearest-Neighbor github.com/nmamano/NearestNeighborInGraphs 2018

Java | Designed and implemented data structures for matching drivers and passengers on a road network dynamically. Leveraged the topology of road networks to optimize the data structures and scale them to statewide networks with 100k+ edges.