

****** POSTDOC OPPORTUNITIES in Computer Architecture and Systems Software ******

We are recruiting multiple talented, ambitious postdoctoral scholars with the energy and creativity to pioneer a new generation of microprocessor and large-scale system architectures and co-designed system software.

The opportunity is to rethink computer architectures---traditionally optimized for compute-intensive dense linear algebra (e.g. LINPACK)--- for new challenges in large-scale, real-time graph analytics (see <https://www.iarpa.gov/research-programs/agile>). Radical changes are needed to overcome current architectures (1) inability to generate high degrees of memory parallelism and (2) inflexible layers of caches whose automated data movement poorly matches the needs of sparse streaming computation.

The postdocs would join the University of Chicago's UpDown project, whose ambition is to complete a full-scale system design – and build it. The UpDown computer rethinks data movement, providing efficient, flexible mechanisms that enable applications to excel at memory-operation intensive graph application processing. With programmable mechanisms, applications and system software can expose new performance levels of memory parallelism, encoding optimization, data movement, and event-driven execution to provide breakthrough performance. Co-design opportunities include enabling rich application-control and hardware efficiency.

These Postdoctoral scholar positions provide the opportunity to work with leading computer scientists in the University of Chicago, Purdue University, industry, and a broad research community spanning computer architecture, system software, and graph applications.

Desired qualifications:

- exceptional intelligence, creativity, and drive to make high impact contributions
- strong research expertise in the interaction of architecture and system software
- experience with C/C++ development for Linux multicore systems
- experience with workload characterization and modeling
- intellectual curiosity to solve fundamental academic research problems
- strong written and oral communication skills
- experience with control systems and/or machine learning is a plus

A recent PhD (or other doctoral degree) in Computer Science or related discipline is required.

This position is available as early as Summer 2022; additional opportunities may arise throughout the year. This position will be located at the University of Chicago. For more information, contact Professors Andrew Chien (achien@cs.uchicago.edu) and Henry Hoffmann (hankhoffmann@cs.uchicago.edu), 5730 S Ellis Ave, Chicago, IL 60637.

The University of Chicago is an Affirmative Action / Equal Opportunity Employer.