

# Dr Nicholas Cameron

Database and distributed systems engineer. PhD in programming language theory; professional experience with database implementation, distributed systems, developer tools, compilers, graphics, browser implementation, and full-stack web development. Formerly, Rust core team and staff research engineer at Mozilla. 12+ years experience of software design and implementation, mentoring, research, and communication.

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## Selected employment

**Senior database and distributed systems engineer**, PingCAP. January 2019 to present.

- PingCAP is a fast-growing startup (from apx 100 to 350 people in my two years), it's main product is TiDB, a distributed and highly scalable, transactional new-SQL database.
- I worked extensively on TiDB and TiKV (a key-value layer underlying TiDB), focussing on distributed transaction protocols. I worked primarily in Rust and Go. I contributed to upstream libraries and to Rust.
- I contributed widely to PingCAP's engineering processes and culture, helping the company to scale rapidly.
- I was involved with planning and project-management for several teams and projects. I mentored and was responsible for junior engineers and interns.

**Senior Research Engineer, Staff Research Engineer**, Rust team, Mozilla. February 2014 to January 2019.

- I worked on Rust tools (IDE support, Rustfmt, Cargo, Rustup, etc), the compiler, and language design. I mentored and was responsible for four interns, and helped and mentored many engineers, coordinated our intern hiring process, and interviewed potential interns and colleagues.
- I've led and delivered several open source projects including design, implementation, project management, attracting and retaining contributors, code review, documentation, and testing.
- I was part of the Rust core team, I built the dev-tools and IDEs teams and associated working groups: set goals and roadmaps, sought out user requirements, guided and prioritised work, run meetings, communicated tools issues to the core team, and mentored and grown team members.
- I've given several talks and tutorials on Rust at industry and academic conferences, companies, and meetups.

**Platform Engineer, Senior Platform Engineer**, Layout and Graphics teams, Mozilla. March 2012 to February 2014.

- Worked on Firefox's rendering systems, from CSS to the GPU, on Windows, Linux, Android, and Firefox OS.
- 10 million line C++ code base. Performance-critical, concurrent code. I worked within and across teams.

**Post-doctoral Research Fellow**, School of Engineering and Computer Science, Victoria University of Wellington. February 2009 to February 2011.

**Research Assistant** (part-time), Software Systems Engineering Group, UCL, October 2004 to April 2005.

**Research Internship**, Software Systems Engineering Group, UCL, June to September, 2004.

**Programmer**, Merchant Internet/Captive Internet, London, November 2001 to May 2005.

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## Higher education

**PhD** in Computing (Programming Language Theory), Imperial College London. October 2005 to October 2008; awarded April 2009.

- “Existential Types for Variance — Java Wildcards and Ownership Types”, supervised by Professor S Drossopoulou and Dr N Yoshida.

**BSc (First class honours)** in Computer Science, University College London (UCL). October 2000 to June 2001, October 2003 to June 2005.

- Deutsche Bank prize for best performing BSc graduating student (3rd year), Deutsche Bank prize for best overall performance (2nd year), CSFB prize for best performance in practical subjects (2nd year).
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## Professional activity

I was part of the Rust core team, led the dev-tools, Cargo, IDEs, and style teams, and was part of the compiler and language teams. I co-lead the TiKV distributed transactions SIG.

I’ve published papers at ECOOP, OOPSLA, ESOP, and several workshops (see <https://www.ncameron.org/papers>). I’ve been on the program committee for RustConf, ECOOP, OOPSLA (external PC), and IWACO. I’ve chaired the program committee of IWACO. I’ve given talks or tutorials at industry and academic conferences, meetups, companies, and universities.

## Skills

**Technical:** Rust, Go, C/C++, Java, Javascript, Python, distributed transactions and consensus, database implementation, SQL, programming language design, type theory, compilers, IDE implementation (including the Language Server Protocol), browser implementation, web development (HTML, CSS, React, Ember, JQuery), GitHub API, GraphQL, OpenGL, DirectX, 2D and 3D graphics, debugging (using GDB, Visual Studio, and WinDbg), optimisation and performance.

**Professional:** code review, mentoring and coaching, software design, interviewing, formal and informal written communication, conference talks and tutorials, large and small group teaching, leading productive meetings, team building, strategic planning, open source development, software engineering practices (testing, documentation, CI, version control (Git, Mercurial), issue tracking, etc.), working with remote and distributed teams.