# jsCoq: New Interfaces for Interactive Theorem Proving

## Internship proposal

École de Mines de Paris — MINES ParisTech

The jsCoq [2] project is a port of the Coq proof assistant to the web browser platform. jsCoq allows to write web pages with embedded proof scripts, opening up significant new possibilities of interaction and distribution. We propose two main lines of work:

**Coq Backend** the SerAPI [1] protocol is an new protocol for machine-based interaction with Coq, used in jsCoq, PeaCoq, and experimentally by CoqIDE. We propose to extend the protocol in two ways: a) improve the control protocol to better suit document-oriented environments such as Emacs or the Web DOM; b) improve the query subprotocol, which powers code completion, display, and proof analysis tools.

**Web Frontend** we propose to integrate the frontend with IPython's[1] web libraries, to improve integration with documentation generation tools, and to improve search, pattern, type, and goal display.

We are open to other ideas. All our projects are open source and available at github.

**Desirable Requisites:** Basic familiarity with Coq and proof workflow. Particular requisites for each part are:

**Coq Backend** Fluency in Ocaml is recommended.

**Web Frontend** Fluency in JavaScript and UI web libraries is recommended.

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## References

[1] E. J. Gallego Arias. "SerAPI: Machine-Friendly, Data-Centric Serialization for COQ". working paper or preprint. Oct. 2016.

[2] E. J. Gallego Arias, B. Pin, and P. Jouvelot. "jsCoq: towards hybrid theorem proving interfaces". In: *Proceedings of the 12th Workshop on User Interfaces for Theorem Provers*. 2016.

[1] recently renamed to Jupyter Notebook