Protocol Labs Research

Consensus — loosely defined as global agreement on the state of a decentralised network across its mutually untrusting participants — has been at the heart of decentralised systems ever since the inception of Nakamoto's Proof-of-Work (PoW) consensus. At the same time, its scalability remains the Achilles' heel of decentralised systems.

A number of ongoing R&D efforts aim at scaling blockchain networks up to 10s to 100s of thousands of transactions per second. Yet such performance targets can be seen as modest when the goal is to bring traditional web workloads to the decentralised web (Web3), requiring the handling of billions of transactions per second, large volumes of data, complex workloads and applications, and hard latency requirements.

Devising consensus protocols in a way that will support these workloads is the focus of the newly launched ConsensusLab at Protocol Labs Research. Together with a growing network of academic and industry partners, and in collaboration with other open innovation projects, we will be building an engine for the decentralised web.

The goal of this event, ConsensusDay 21, is to introduce ConsensusLab to future partners and to establish a workshop-style venue to bootstrap scientific exchange across a wider community. We invite contributions from current and prospective collaborators, as well as all researchers in the field.

These topics of interest span scaling decentralized systems, including but not limited to:
- Sharding
- Consensus protocols
- Parallel execution
- Reconfiguration of consensus protocols
- CRDTs and consistency semantics weaker than total order
- Security/scalability tradeoffs
- Interoperability across blockchain systems
- Novel approaches to sybil attack protection
- Scalable VDFs, VRFs and other cryptographic primitives

Accepted contributions will be given a presentation slot at the workshop. The submissions format is flexible, ranging from 2-page talk abstracts to articles/pre-prints up to 12 pages double-column (or equivalent). A non-exhaustive list of potential submissions includes:
- Talk abstracts
- Demo abstracts
- Position papers
- Work-in-progress papers
- Preprints

Important Dates
- Submission Deadline: 8 September
- Acceptance Notification: 22 September
- Workshop date: 6 October

Submission Information

Contributions should be submitted via https://consensusday21.hotcrp.com/ in PDF format. At least one author of each accepted contribution is required to present the work at the workshop. Talks are expected to be 20-minute long, though the schedule may need adjustments based on the number of accepted submissions.

No proceedings will be published, and submission to the workshop does not preclude future publication elsewhere. The review process is single-blind - authors should present their names and affiliations in the submitted manuscript.

Organising Committee
- Marko Vukolić (Protocol Labs)
- Jorge M. Soares (Protocol Labs)

For comments and questions please email us at consensusday@protocol.ai.