

Thesis  
B.Sc.

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M.Sc.

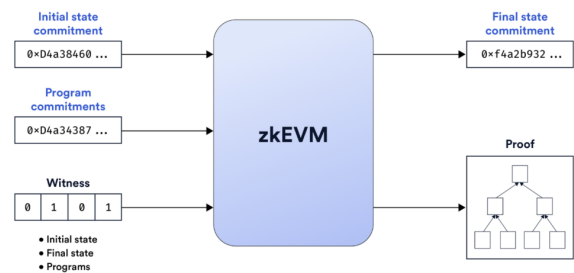
IDP

# Privacy-Preserving Mobility Analysis through Zero-Knowledge Methods

## Motivation

Analysis of mobility data is critical for many disciplines, such as civil engineering. Collecting such data without violating the privacy of the mobile individuals is however challenging. Users could also process this data themselves and transfer it to a central service, such that

this service does not gain access to the raw mobility data. This however requires trust in the users and the devices which run the processing. Using Zero-Knowledge-Proof Methods can tackle this problem: users do not have to transfer sensible data to a service and can instead run data processing on their devices, while the service can prove that the computation was done correctly without access to the input data.



## Your Task

- Familiarize yourself with zkVMs [1,2]
- Implement logic for processing mobility data (GPX) inside the VMs
- Build a mockup interface for users
- Evaluate usability, performance and privacy of your implementation

## References

- [1] <https://www.risczero.com/>  
[2] <https://github.com/succinctlabs/sp1>

## Requirements

**High familiarity with Zero Knowledge Proofs!** This is a very advanced topic with little time to read into ZKPs!

## Contact

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