# FURI 2019 Proposal

Lucas Saldyt, *Arizona State University*

*Abstract*—**Programming quantum computers currently requires specialized knowledge. This project aims to prototype a higher-level, quantum-classical-hybrid programming language for expressing probabilistic computations easily. The MIT cognitive science community has produced many developments using probabilistic programming languages [TODO: Cite]. Classical probabilistic programming builds models from building blocks called exchangeable random primitives. Similarly, quantum programming uses qubits, which are have complex probability amplitudes and may similarly be building blocks for models. This paper presents the prototype for a quantum programming language which offers novel abstractions not yet available in existing quantum programming languages.**

*Index Terms*—**Quantum Computing, Programming Languages**

## REFERENCES

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.

**Lucas Saldyt** is currently a student researcher at Arizona State University, and has previously worked for Sandia National Laboratories and Los Alamos National Laboratories as a student intern in the quantum computing department.