

## 2018 Research Interest/Project Ideas

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### **Decompilation for Program Understanding**

In recent work, we have developed novel techniques for static analysis, based on decompiling low-level imperative programs into higher-level functional representations, based on collective forms and a novel structured heap abstraction that enables precise reasoning about dynamic allocations (<https://www.cs.purdue.edu/homes/rompf/papers/essertel-draft2017b.pdf>). In this project, we plan to extend these novel decompilation techniques to machine language, with the goal of decompiling binary code back to C or even higher level languages. A key use case is in forensics and malware analysis.