

# SUBODH WAGH

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## Education

### M.Sc. in Computer Science

*Pursuing (Exp. 2025)*

Department of Computer Science, Savitribai Phule Pune University, Pune

*Key Coursework:* Compiler Design, System Programming, Data Structures

### B.Sc. in Computer Science

*Completed Jun 2024*

PVP College of Arts, Science and Commerce, Pravaranagar, Maharashtra

## Technical Skills

- **Languages:** C, Python, Bash Scripting, SQL, Java
- **Specializations:** Network Engineering (BGP/EVPN/VXLAN), Compiler Design, System Programming, Low-Level Architecture
- **Tools & Technologies:** Linux (Ubuntu/Fedora), NeST, FRR, Git, GCC, Make, Vim, VS Code

## Key Projects

### Virtual Data Center Fabric (Network Automation)

*2025 (In Progress)*

*Stack:* Python, NeST, Linux Namespaces, FRR (BGP) | Repository

- Architected a Software-Defined Networking (SDN) simulation of a Spine-Leaf (CLOS) fabric using Linux network namespaces and veth pairs.
- Designed a modular Python control layer leveraging NeST to programmatically instantiate topologies, interfaces, and IP addressing.
- Automated a BGP EVPN control plane by dynamically generating FRRouting (zebra/bgpd) configurations and managing daemon lifecycles.
- Simulated control-plane convergence, route advertisement, and tenant isolation to study distributed routing behavior on Linux.

### Self-Derived Translator (Compiler Design)

*2025*

*Language:* C | Repository

- Built a source-to-x86 compiler implementing lexical analysis, recursive-descent parsing, and syntax-directed translation.
- Designed symbol tables, scope handling, and basic register allocation strategies for assembly code generation.
- Emitted structured x86-style assembly while preserving control-flow semantics for conditionals and loops.

### x86 Assembler (System Programming)

*2025*

*Language:* Python | Repository

- Implemented a two-pass symbolic assembler translating x86 assembly into NASM-compliant machine code.
- Built instruction parsing, opcode mapping, label resolution, and relocation logic for binary encoding.
- Gained low-level insight into instruction formats, addressing modes, endianness, and executable layout.

## Activities & Certifications

- **CSFG Cell Member (SPPU):** Coordinated departmental events and assisted in organizing technical workshops (2025–2026).
- **Certifications:** C Programming, Java Programming, Java Internship