Rushil Venkateswar

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EDUCATION

- **Indian Institute of Technology Kharagpur** — Kharagpur, India
  Dual Degree (B. Tech. + M. Tech.) - Computer Science and Engineering; CGPA: 8.79 — *Dec 2020 - ongoing*
- **Little Flower School** — Jamshedpur, India
  Higher Secondary - ISC; percentage: 96.25% — *March 2018 - March 2020*
  Subjects: *Mathematics, Physics, Chemistry, Computer Sc. (Java), English*
- **Little Flower School** — Jamshedpur, India
  Secondary - ICSE; percentage: 95.40% — *March 2007 - March 2018*

PROJECTS

- **Supermarket Automation System (*CS29202*)**
  Front-end: HTML, CSS, Javascript   Backend: Python (Django)   Database: SQLite3 — *March 2022*
  - Automation Software for a Supermarket with role-based permission and authentication (Manager, Employee, Clerk)
  - Generate bill at the end of every sales transaction with all transaction-details, bill split-up, and net payable amount
  - Maintain the inventory of all the items in-stock by adding new products and updating stock-quantity (employee-only)
  - Print Sales statistics with any particular day or particular period, indication quantity sold and profit (manager-only)
- **RISC: Reduced Instruction Set Computer (*CS39001*)**
  Tech: Verilog (HDL), AMD Xilinx, Nexys Video Artix-7 FPGA — *Sept - Nov 2022*
  - Designed the KGP-miniRISC processor with an Instruction Set Architecture (ISA), consisting of 32 bit word
  - All the registers and memory elements having 32 bit data. The address line of the memory is also 32 bits
  - For a single cycle implementation of the controller, there is no state and the design is purely combinational
  - While deciding the op-code, we made provisions for adding more instructions to the ISA
- **tinyC Compiler *(CS39003)***
  Tech: Flex, Bison, SymbolTable, QuadArray, TheeAddressCode Generator — *Sept - Nov 2022*
  - Created library for standard input-output operations and followed International Standard ISO/IEC 9899:1999 (E).
  - Defined flex specifications for the language of tinyC using the Phase Structure Grammar given in the C Standard.
  - Used Bison specifications to define the tokens of tinyC and write the semantic actions in Bison to translate a tinyC program into an array of 3-address quad's, a supporting symbol table, and other auxiliary data structures.
  - Developed target code translator to generate the assembly language of x86-64 from the Three-Address-Code quad array.

EXPERIENCE

- **Research Intern — Prof. Pawan Goyal, IIT Kharagpur** — Kharagpur, India
  Topic: Few-shot Cross-lingual Event Detection for low-resource languages — *Dec 2021 - May 2022*
  - Tech: Python, Pytorch, Multilingual BERT model, HuggingFace transformer framework
  - Used multilingual BERT for few-shot cross-lingual Event trigger detection task
  - Evaluated our model using F1 score, for each language (Hindi, English, Marathi, Tamil, Telugu)

COURSEWORK

- **Computer Science (Theory+Lab):** Algorithms-I, Software Engineering, Systems Programming, Compilers, Computer Architecture and Organization, Machine Learning, Algorithms-II, Programming & Data Structures

- **Mathematics:** Discrete Structures, Advanced Calculus, Linear Algebra, Numerical and Complex Analysis, Probability and Statistics, Econometric Analysis, Linear Algebra for AI and ML

- **Ongoing Courses:** Deep Learning, Database Management and Systems, Operating Systems, Computer Networks

SKILLS SUMMARY

- **Languages fluent in:** C, C++, Python, Bash (Shell Programming).
- **Languages familiar:** Java, Awk, MySQL, HTML5, CSS3, Javascript, LaTeX.
- **Libraries and Frameworks:** STL(C++), NumPy, Pandas, Tkinter, PIL, Pytorch, json, Django.
- **Platforms & Tools:** Linux, Windows, MacOS, FreeCAD, MS-Excel.

HONORS AND AWARDS

- **VIJYOSHI Science Camp** participant — *IISER, Kolkata* - Dec 2019

- **KVPY Scholar** — *IISc, Bangalore* - 2019

- **MTRP** participant — *ISI, Kolkata* - Feb 2019

- **NTSE** fellowship awardee — *NCERT, New Delhi* - 2018

POSITION OF RESPONSIBILITY

- **Departmental Representative — Placement Team**
  Career Development Centre, Indian Institute of Technology Kharagpur *2022 - 2023*

- **Secretary: Sports and Games**
  Lal Bahadur Shastri Hall of Residence, Indian Institute of Technology Kharagpur *2021 - 2022*