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Vancouver
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# Gunbir Singh Baveja

sheeerio.github.io
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## Skills

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|---|---|
| **Frameworks** | OpenCV, fastai, PyTorch, Tensorflow, SciKit/XGBoost, Swing, React, NumPy |
| **Programming** | Python, Java, C/C++, Git, JavaScript, TypeScript, LaTeX, Matlab, MarkDown |
| **Graphics** | Blender, Autodesk Maya, Unreal Engine, Adobe Illustrator |

## Projects

**Data-Efficient Exploration with Self Play in Open-ended environments**

- Implemented Provable Self-Play Algorithms for Competitive Reinforcement Learning in PyTorch.
- Compared our method with SOTAs such as SelfPlayer, GoExplore, Curiosity, PPO, Rainbow, SimPLe
- Demonstrated the sample-efficiency of VI-ULCB, proving the algorithm to be robust for open-ended problems.

**Schizospeak: An Esoteric Programming Language** **July 2023**
`http://npmjs.com/package/schizospeak`

- Developed Parser, a Lexer, and Interpreter using TypeScript and incorporated expressions, declarations, identifiers, and literals types.
- Implemented self-recursive code and depth-first search algorithm to solve logical lexical morphology of the language.
- Created the language to support Expressions: assignment, binary, call, and member expressions; Declarations: variable, function, if, and for declarations; and Literals: numeric, string, and object literals.

**Alokhe** **February 2022**
`https://github.com/sheeerio/alokhe`

- Developed symbolic code in Python to perfectly transliterate from English to Hindi using phonosyntactic rules of linguistics.
- Used flask to create and host a REST API for Alokhe.
- Created a discord bot using JavaScript that used Alokhe API and OpenAI API with the ability to transliterate English to Hindi and Hinglish (Hindi written in the alphabet) to Hindi.

**AutoTechnoblade** **November 2020**
`https://socialblade.com/twitter/user/autotechnoblade`

- Fine-tuned GPT-2 on Technoblade's tweets using few-shot learning.
- Created a Twitter bot using Python and JavaScript.

**12 Minutes: Text Adventure Game** **January 2023**
`https://github.com/sheeerio/text-adv-game`

- Developed "12 Minutes" using Java, creating a minimalist text-based adventure game with button-based interactions with multiple endings.
- Implemented resource management and puzzle-solving mechanics, relying on environmental cues rather than dialogues for storytelling.
- Incorporated user-requested features, such as inventory management, crafting, combat, and interaction with NPCs and items, all programmed in Java.

## Work Experience

**Software Team Lead,** Fast.ai, PyTorch, Arduino, Python **November 2023 - Present**
*Open Robotics* *Remote*

- Leading a six-member software team for the Pianobot project.
- Directed the development of the MIDI and Arduino translators.
- Implementing Reinforcement Learning (RL) algorithms to optimize for technical efficiencies and working towards more autonomous behavior of the robot – allowing for real-time improvisation.

**Research Intern,** PyTorch, OpenCV, Matplotlib, **June 2023 - August 2023**
*Indian Institute of Technology* *Delhi, India*

- Under the supervision of Dr. Indu Singh: formulated, designed and implemented a novel two-fold multimodal recognition architecture with histogram equalization with FALF-SVR, a pre-activated Inv-ResNet block with spatial attention and global-local JFPA-ROA search-matching.

**Machine Learning Intern,** TensorFlow, OpenCV, MongoDB, Python **April 2020 - July 2020**
*Bausch + Lomb* *Remote*

- Implemented data augmentation techniques to diversify and expand the training dataset.
- Utilized incremental learning methodologies for continuous improvement of the model over time and developed a large-scale model that demonstrated enhanced accuracy in predicting stock levels.

**Research Intern,** Python, SKLearn, Tensorflow, MATLAB **August 2020 - November 2020**
*GD Goenka University* *Sohna, India*

- Conducted research under the supervision of Dr. Jaspreet Singh in the department of Computer Science and Engineering.
- Created an earthquake magnitude prediction model using Extreme Learning Machines and Support Vector Machines.

## Achievements

- **Second Award, Global Youth Science and Technology Bowl:** independent project. Awarded by The Hong Kong Federation of Youth Groups.
- **Grand Award, IRIS National Fair:** Selected amongst around 1000 teams to represent India at the Intel Science and Engineering Fair. Awarded by the Ministry of Science and Technology of India.
- **Finalist, Intel Science and Engineering Fair.** Represented India at the largest science fair in the world.
- **Most Outstanding Exhibition in STEM, IRIS National Fair:** awarded by Yale Science and Engineering Association to 1 team/student at the IRIS National Fair.
- **Bronze Medal, Asia Pacific Lingusitics Olympiad (APLO):** selected as team alternate for India at the International Linguistics Olympiad (IOL) 2022. APLO Rank 8, PLO Rank 11.
- **Outstanding International Student Award**, UBC Vancouver ($10,000)

## Education

**Bachelor of Science** **Sept 2022 - Present**
*University of British Columbia, Vancouver*

- **Most Recent GPA:** 4.20/4.33, **Major GPA**: 4.33/4.33, Dean's List 2023
- Software Lead@Open Robotics, Data Science Club, Undergraduate Mathematics Society, ACM
- Relevant Coursework: Software Construction, Intro to Computer Systems, Basic Data Structures and Algorithms, Matrix Algebra, Probability