

Ajay Sohal

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Experience

Copperpod IP

Senior Research Analyst

Chandigarh, India

Jul 2023 – Present

- Lead claim charting, infringement analysis, and prior art searches across commercial IoT and AR/VR products, tracing patent claims against real-world devices, source code, and product teardowns.
- Analyzed 100+ patent portfolios and 500+ individual patents, directly supporting client revenue generation exceeding \$100M through infringement identification, prior art searches, and targeted market analysis.
- Conduct freedom-to-operate (FTO) studies and patent landscape reports; support litigation work including motion-to-dismiss (MTD) response strategy and damages calculations.
- Deliver SEP (Standard-Essential Patent) analysis and claim charting against 3GPP technical specifications for telecom clients.
- Conduct market research, reverse engineering, source code review, and product testing to produce technical and legal reports substantiating infringement claims.
- Execute patent searches across USPTO, WIPO, Espacenet, Derwent, PatBase, and Questel; advise clients on portfolio monetization, licensing, and enforcement strategy.
- Mentor junior analysts on claim interpretation and chart construction, reviewing work to ensure litigation-grade accuracy before client delivery.

CSIR – Central Scientific Instruments Organisation (CSIO)

Embedded Systems Engineer

Chandigarh, India

Jan 2023 – Jun 2023

- Engineered a gas absorption measurement system on a RedPitaya embedded platform integrated with MATLAB for real-time signal acquisition and processing.
- Designed and executed tunable diode laser absorption spectroscopy (TDLAS) experiments, achieving 90% measurement accuracy with 75% noise reduction via baseline correction and signal normalization.
- Built a Python-based real-time data acquisition pipeline, advancing the system to 60% functional completion within the project timeline.

Design Innovation Centre, Panjab University

IoT & Machine Learning Engineer

Chandigarh, India

Jul 2022 – Aug 2022

- Designed and built SpectroPlotter, a low-cost portable spectroscope (70% efficiency) using RGB light sensing, Raspberry Pi, and Python for light absorption and liquid solubility analysis, with integrated data visualization.

Defence Research & Development Organisation (DGRE-DRDO)

Data Science Intern

India

Aug 2021 – Sep 2021

- Developed a credit card fraud detection pipeline in Python using Isolation Forest and Random Forest algorithms, achieving 80% classification efficiency.

Publications

“3GPP Through the Ages: A Guidebook” — Co-author

A comprehensive technical overview of the evolution of 3GPP standards across key releases, written to make dense standards history usable for telecom IP and licensing professionals.

Projects

Outlier Detection System

Python, Pandas, Scikit-learn, Matplotlib

Performed EDA on credit card transaction data; tuned Random Forest and Isolation Forest models, achieving 72% classification accuracy on imbalanced fraud data.

SpectroPlotter

Python, Raspberry Pi, Integrated Light Sensors

Built a compact spectroscopy device for light-absorption-based liquid solubility detection, with a GUI for offline spectral visualization.

3-Lead ECG Monitor

Arduino, C, MATLAB

Designed a real-time biosignal acquisition system with digital filtering; applied baseline correction in MATLAB for a 75% improvement in processing accuracy.

Technical Skills

Languages: C, C++, Python, SQL, Kotlin, VHDL, Assembly, LaTeX, HTML5, CSS3

Frameworks: Django, Flask, Tailwind CSS

Tools & IDEs: Git/GitHub, Bash, Linux, MATLAB, Simulink, LTSpice, PSpice, μ Keil, Figma, Power BI, Android Studio

Patent Databases: USPTO, WIPO, Espacenet, Derwent Innovation, PatBase, Questel

Domains: Patent Analytics, Prior Art Search, FTO/SEP Analysis, Embedded Systems, Signal Processing, Data Science

Languages Spoken: English (Full Professional), Hindi (Native), Punjabi (Native), Thai (Elementary)

Education

Panjab University

India

B.E., Electronics & Communication Engineering

Punjab State Board of Technical Education & Industrial Training

India

Diploma (Hons.), Electrical Engineering

Extracurricular & Recognition

- Invited Speaker, PGIMER — delivered a talk on “Employing Python for Experimental Data Analysis and Visualization” at the 3rd Advanced Training Programme in Experimental Behavioral Neurosciences (Indian Pharmacological Society).
- 2nd Prize, Logo Design Competition, CCET ACM Chapter; co-designed the ACM chapter website UI (HTML/CSS).