

# PENGNAN FAN

## Medical AI Engineer at ChromX Health

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## EXPERIENCE

### Medical AI Engineer - ChromX Health

#### GC Data analysis/Bioinformatics/Clinical Research

📅 Aug 2022 - Current

📍 Guangzhou, Guangdong

- Core member in gas chromatogram analysis, bioinformatics researcher and IVD products development with 5 patents granted related to GC data analysis and biomarker discovery
- Core member in research team as data analyst with 3 published paper related to cancer screening

### NLP Developer - KingMed Diagnostics

#### Medical NLP

📅 Jun 2021 - Jul 2022

📍 Guangzhou, Guangdong

- Member of KingMed NLP Team
- Project leader and NLP developer of KM-IRS, an BERT-based medical report explaining system
- Training, deploying and accelerating (distillation) of BERT-based sentence encoding model

### Research Intern - McGill University

#### Temporal Action Localization on Hockey Videos

📅 Dec 2019 - May 2021

📍 Montral, Canada

- Supervised by Professor Martin Levine from Intelligent Multi-model Video Anaysis Lab at McGill Centre for Intelligent Machines.
- Assisting PhD students on building a hockey video temporal action location dataset (Tempucky)
- Traing BSN/Dual Encoding Network on the Tempucky dataset
- Implementing a video labelling tools in Python3

### Machine Learning Intern - Huawei Technologies

#### Face Identification with Neural Architecture Search

📅 May 2019 - Aug 2019

📍 Beijing, China

- Internship program in summer 2019 at Huawei Beijing Research and Development Centre
- Applying PDARTS/PC-DARTS/Single-Path NAS to search for efficient face identification models
- Holding company-wide seminars about AutoML-NAS papers
- Assisting Huawei Noah's Ark Lab on NAS experiments

## TECHNICAL SKILLS

- Programming Language: Python, Java, C
- Deep Learning: PyTorch, transformer, OpenCV
- Data Science: Numpy, Scipy, Pandas, Sci-Kit Learn
- Backend: Flask, FastAPI, Docker, Kubernetes
- Software Engineering: Git, UML

## EDUCATION

### Bachelor of Software Engineering

#### Department of ECE, McGill University

📅 January 2018 - May 2021

CGPA: 3.70/4.0

## PATENTS

#### Metabolite screening method, device, equipment and storage medium for disease markers

- Issued on Jan 13, 2025 (CN118039030A)

#### Auxiliary analysis method, device, equipment and storage medium for cognitive impairment

- Issued on Oct 23, 2024 (CN117831756A)

#### Model construction method and related device for lung nodule malignancy risk assessment

- Issued on Oct 1, 2024 (CN118380156A)

#### Chromatographic signal peak offset alignment method, device and equipment

- Issued on Sep 10, 2024 (CN118330118B)

#### Automated analysis method and system for expiratory molecular analysis gas chromatography data

- Issued on Jun 9, 2023 (CN116242954A)

## PUBLICATIONS

#### Machine Learning Assisted Breathomic Approach for Early-Stage Thoracic Cancer Detection

- Published on Aug 25, 2025 on Frontiers in Oncology
- Contributed in data analysis and visualization

#### Innovative Portable Breathomic Device For Early Non-Invasive Differentiation Of Benign And Malignant Lung Nodules

- Published on Mar 28, 2025 on ELCC 2025
- ESTS-AATS Foundation Excellence Award
- Contributed in data analysis and visualization

#### Exploring Exhaled Volatile Organic Compounds as Potential Biomarkers in Anti-MDA5 Antibody-Positive Interstitial Lung Disease

- Published on Mar 18, 2025 on Molecular and Cellular Biochemistry
- Contributed in data analysis and visualization