

## SKILLS

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**Programming & Statistical Analysis:** R (statistical modeling & visualization), Python (machine learning pipelines), Excel, SPSS, GraphPad Prism

**Genomic Data Analysis:** Sanger sequencing analysis (using Chromas and FinchTV), WES/NGS analysis (using Linux-based workflows)

**Bioinformatics Databases & Tools:** NCBI Gene/Protein, Ensembl, UniProt, BLAST, Primer design and optimization for PCR, qPCR, and sequencing (Primer-BLAST, OligoAnalyzer, Gene Runner)

**Machine Learning:** Supervised modeling, feature selection, model evaluation (ROC-AUC, CV, class-imbalance handling), Applied to clinical-omics integration for DR staging

**Molecular Modeling & Docking:** Protein structure visualization (ChimeraX, PyMOL) and molecular docking simulations (AutoDock Vina, SwissDock).

**Molecular Biology Techniques & Data Validation:** DNA/RNA extraction, quality control (NanoDrop, gel electrophoresis), molecular contamination management, qPCR data analysis (using REST/GraphPad)

**Research Methods (Advanced):** Experimental design, statistical analysis, scientific writing & reporting, scientific illustration using BioRender

**Transferable Skills:** Problem-solving, analytical thinking, collaborative teamwork, student tutoring, adaptability, self-motivation with a positive attitude

### Statistics, Bioinformatics, and Programming

- Preliminary and Advanced Statistical Analysis, 2024. Tehran University of Medical Sciences, Dr Noorbakhsh
- Comprehensive course in applied bioinformatics, 2025. Nexintek Education Inc, Canada
- Introduction to Data Analysis with R Language, 2020. Scientific Society of Biology, University of Tehran
- Applied programming with R and biological data analysis, 2025. Nexintek Education Inc, Canada
- Comprehensive Python training, 2025. Maktabkhooneh, Jafar Mirmirani

### Genomic Data Analysis

- Whole Exome and NGS Data Interpretation Course, 2022. International Biomedical Congress
- Whole Exome Data Interpretation in Genetic Diseases, 2024. Iran University of Medical Sciences
- Genomic Data Science Specialization, ongoing. John Hopkins University, Coursera

### Machine Learning

- Machine Learning Training with Python, ongoing. Maktabkhooneh, Jafar Mirmirani
- AI for Medicine Specialization, planned. DeepLearning.AI, Andrew Ng

### Molecular Modeling & Docking

- Learn Molecular Docking with Step-by-Step Guidance, 2025, Discovery Boulevard
- Protein Structure Modeling and Molecular Docking, 2025. Nexintek Education Inc, Canada

### Molecular Biology & Experimental Techniques

- Molecular Biology Techniques Course Department of Biotechnology, 2023. University of Tehran
- Cell Culture Techniques Workshop (3 days), 2023. Iran University of Medical Sciences
- Cytogenetics Internship Akbar Abadi Hospital, 2023. Iran University of Medical Sciences

### Research and Theoretical Development

- Scientific Figure Design for Publications (BioRender), 2024. BioRender Official
- Research Methods and Scientific Paper Writing, 2023. Iran University of Medical Sciences
- Documentation in Management Systems Workshop, 2020. Talented Students Secretariat, Iran University of Medical Sciences
- Introduction to Biology: The Secret of Life (edX), 2019. Massachusetts Institute of Technology
- Autophagy: Research Behind the 2016 Nobel Prize in Physiology or Medicine (edX), 2019. Tokyo Institute of Technology