

## MIT-Novo Nordisk Artificial Intelligence Postdoctoral Fellows Program: Focus Areas

Potential areas of focus for postdoctoral fellows participating in the MIT-Novo Nordisk Artificial Intelligence Postdoctoral Fellows Program include, *but are not limited to*, the following:

### Research and Early Development

- Bioinformatics and Computational Biology
- Generative AI-enabled Drug Discovery and De Novo Drug Design
- Protein Folding/Molecule Design
- Virtual Compound Screening
- Structure–Activity Relationship (SAR) Analysis
- Chemical Property Prediction (Solubility, Toxicity, Bioactivity)
- Biomarker Identification and Validation
- Disease Biology and Understanding
- Target Identification/ Target Validation
- Translational Modeling and Simulation

### Development

- Clinical Trial Simulations
- Disease Progression and Risk Modeling
- Multi-omics Analytics
- Clinical Data, EMR, and Patient Monitoring Data Analysis
- Medical Image and Pathology Analysis
- Furthering Value of Digital Health Solutions
- Drug Safety and Adverse Event Prediction
- Trial Automation and Operational Efficiency
- Portfolio Analysis
- Device Simulations
- NLP in Biomedical Literature, Clinical Trial Data, and Drug Databases
- Patient Recruitment and Site Selection Optimization
- Population Health and Epidemiological Predictive Modeling
- Data Augmentation and Synthetic Data
- Synthetic arms and virtual/digital twin technology development
- Generative AI applications toward clinical development
- Graph-based knowledge discovery for clinical development
- Causal inference

### Product Supply

- Product Quality and Anomaly Detection
- Systems Surveillance
- Demand Forecasting
- Supply Chain Modeling
- Optimizing Inventory Levels



- Packaging Optimization

### **IT/Enterprise**

- Generative AI Solutions for Enterprise
- MLOps, LLMOps, AI Marketplace, and Reusable AI Capability Blocks and Blueprints
- AI Ethics and Compliance frameworks
- Differential Privacy Techniques for AI Services
- Cybersecurity
- LLMs and Knowledge graphs
- AI-augmented Data Engineering, IT Operations and DevOps
- AI in the Workplace; Education, Implications, Risks and Ethics
- AI Agents in the Enterprise - i.e AI HR Coach, Salesrep practice with deepfakes HCPs etc