Research Plan for CSE3000 Research Project

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Research Questions

Can domain adaptation improve AI-based hand landmark prediction from RGB to infrared (IR) images?

Technical Constraints

Performance Comparison

Evaluation Metrics
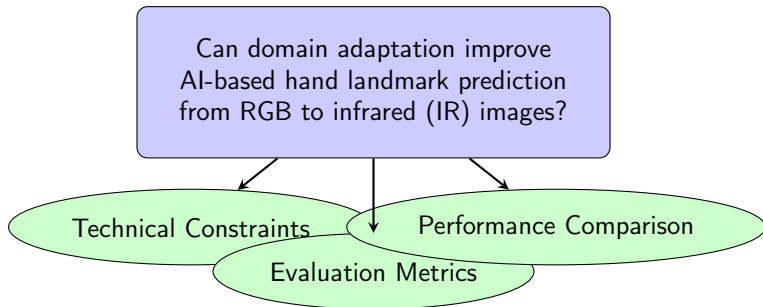
Technical Constraints

- Limitations of existing methods
- Maintaining real-time inference

Evaluation Metrics

- Key performance indicators
- Accurate detection metrics

Performance Comparison

- Low-cost vs baseline
- Medium-cost vs alternatives

Methodology

Key Steps:

1. **Setup Development Environment & Tools**
2. **Organize and Clean Data**
3. **Feature Extraction & Data analysis**
4. **Implement and Evaluate Methods**
5. **Validate and Document Results**

Project Timeline

Key Milestones:

- **Nov 2024**: Literature Review & Evaluation Framework
- **Dec 2024**: Method Implementation & Midterm Presentation
- **Jan 2025**: Model Optimization & Comparison Analysis & Final Documentation