

Team's Proposal

StudyPath AI: Your Personal Academic Navigator

Revolutionizing Academic Planning with Edge AI Intelligence

Executive Summary

StudyPath AI transforms academic planning by leveraging Snapdragon's NPU to create a powerful, privacy-first platform for personalized academic guidance. Our solution addresses critical challenges in course selection, academic performance optimization, and career alignment that today's university students face.

Problem Statement

Current academic planning faces several critical challenges:

- 40% of university students change majors at least once
- 60% of students take unnecessary courses, delaying graduation
- Only 28% of students feel confident about their course choices
- Traditional academic advising reaches only 20% of students effectively
- Lack of real-time, personalized guidance leads to suboptimal academic decisions

Our Solution

StudyPath AI provides continuous, AI-powered guidance that adapts to each student's evolving needs and goals, all powered by on-device processing using Snapdragon's NPU.

Core Features

- 1. Intelligent Course Planning System**
 - Automated prerequisite chain analysis
 - Smart course load balancing
 - Grade trajectory forecasting
 - Study time requirement estimates
 - Real-time schedule optimization
- 2. Personal Learning Analytics**
 - Learning style identification
 - Study pattern recognition
 - Progress tracking and benchmarking
 - Resource utilization optimization
 - Performance prediction
- 3. Career Integration Module**
 - Skill-based course mapping
 - Industry requirement tracking
 - Career pathway visualization

- Internship opportunity matching
- Project-based learning suggestions

Technology Stack

1. Frontend Development

- React Native/Flutter for cross-platform deployment
- TailwindCSS for UI design
- React Query for state management
- PWA support for offline functionality

2. Local Data Processing

- SQLite for local storage
- IndexedDB for browser caching
- End-to-end encryption for data privacy

3. AI/ML Implementation

- ONNX Runtime for NPU optimization
- TensorFlow Lite for model deployment
- Qualcomm Neural Processing SDK
- Custom ML pipelines for learning pattern analysis

Key Technical Innovations

1. Edge Computing Optimization

- Model quantization for efficient processing
- NPU-optimized computations
- Batch processing strategies
- Memory management optimization

2. Privacy Protection

- End-to-end encryption
- Differential privacy implementation
- Local processing guarantee
- Secure data storage

3. Real-time Processing

- Stream processing framework
- Incremental learning capabilities
- Efficient caching strategies
- Parallel computation optimization

Implementation Plan for Hackathon

Day 1

Morning (4 hours)

- Environment setup and NPU integration
- Core data structure implementation

- Basic model deployment

Afternoon (4 hours)

- Course analysis engine development
- Learning pattern recognition system
- Local storage implementation

Evening (4 hours)

- UI framework setup
- Basic feature implementation
- Initial testing

Day 2

Morning (4 hours)

- Advanced features implementation
- Performance optimization
- UI refinement

Afternoon (4 hours)

- User testing and feedback integration
- Bug fixes and optimizations
- Documentation

Evening (4 hours)

- Final testing
- Demo preparation
- Presentation rehearsal

Market Strategy

Target Market

- Primary: University students (20M+ in North America)
- Secondary: Academic institutions
- Tertiary: Educational technology partners

Revenue Model

- B2C: Student subscriptions (\$5-10/month)
- B2B: Institution licenses (\$50K-200K/year)

- API access for EdTech integration

Growth Strategy

- Initial launch at pilot universities
- Expansion through student ambassadors
- Partnership with academic advisors

Competitive Advantages

1. **Privacy-First Architecture**
 - Complete on-device processing
 - No cloud dependency
 - Secure data handling
2. **Real-Time Processing**
 - Instant analysis and recommendations
 - Dynamic optimization
 - Continuous monitoring
3. **Personalization**
 - Individual learning style adaptation
 - Custom study strategies
 - Career path alignment
4. **Scalability**
 - Multi-institution support
 - Cross-platform compatibility
 - Extensible architecture

Success Metrics

- User Engagement: Daily active users, feature utilization
- Academic Impact: GPA improvement, graduation rate
- Career Outcomes: Internship placement, job alignment
- System Performance: Response time, battery efficiency

Why StudyPath AI?

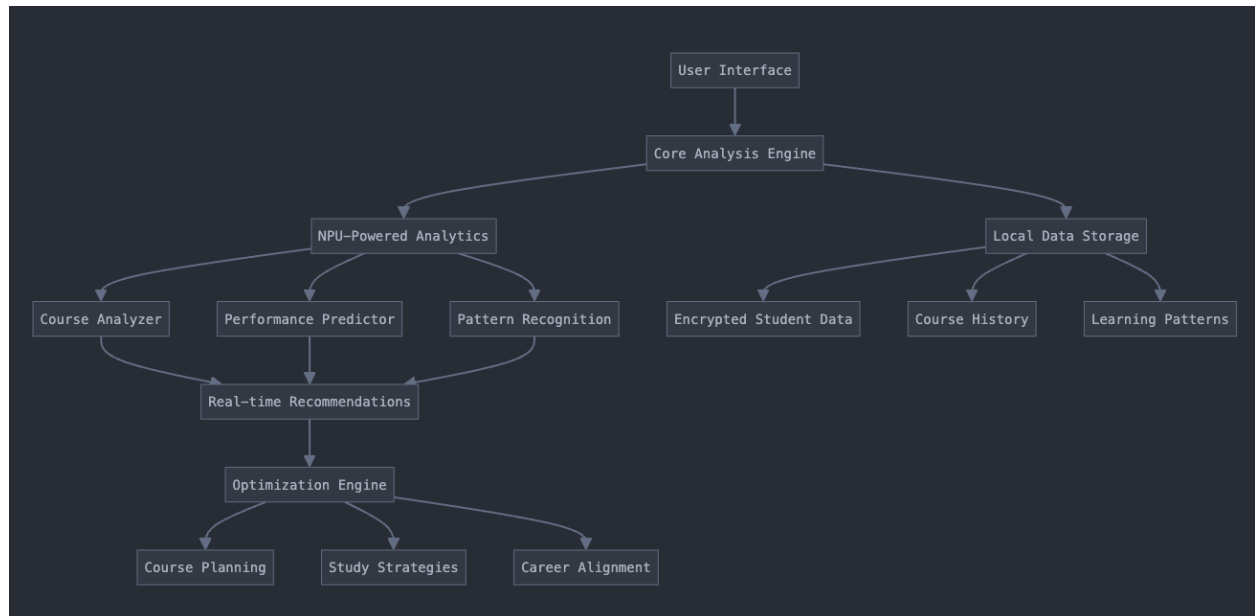
1. **Innovation:** Leverages cutting-edge NPU technology for unprecedented personalization
2. **Impact:** Addresses critical needs in higher education
3. **Feasibility:** Achievable MVP within hackathon timeframe
4. **Scalability:** Clear path to market with multiple revenue streams
5. **Privacy:** Industry-leading privacy protection through edge computing

Team Requirements

- Frontend Developer (React Native/Flutter expertise)
- ML Engineer (TensorFlow/ONNX experience)

- Backend Developer (Local storage optimization)
- UI/UX Designer
- Product Manager

This proposal presents a compelling solution that combines technical innovation with real-world impact, making it an ideal candidate for the Qualcomm AI Hackathon. The focus on NPU utilization and edge computing aligns perfectly with the hackathon's goals while addressing a significant market need.



Team member information:

Name	Major
Xinyue Xuan	Computer Science-Align
Zimin Cai	Computer Science-Align
Xiang Li	Computer Science-Align
Ziming Yi	Computer Science-Align
Chenjieshao Yang	Computer Science-Align