SeonJoon Park
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Education

- **Seoul National University** — Seoul, South Korea
  Bachelor of Arts (Cum Laude) — *Aug. 2012 – Feb. 2019*
  - *Major in Agricultural and Resource Economics*
  - *Major in Electrical and Computer Engineering*
  - *Minor in Mathematical Sciences*

Experience

- **QANDA, Mathpresso** — Seoul, Korea
  Machine Learning Engineer — *Jan. 2019 - Present*
  - **OCR System**:
    - Engineered and maintained a cutting-edge OCR system optimized for mathematical equation and textual data recognition.
    - Designed and operationalized an advanced Human-in-the-Loop pipeline to augment the detection module's accuracy and efficiency.
    - Architected and deployed a web-based annotation tool to streamline prediction verification and correction workflows.
    - Spearheaded the creation of data annotation guidelines and tools to bolster data quality.
    - Applied innovative Active Learning methodologies to continuously enhance model performance
  - **Search Ranking**:
    - Conducted in-depth analysis and implemented algorithmic refinements for preprocessing pipelines, leading to a 30% reduction in infrastructure costs without compromising model fidelity.
  - **Content Recommendation System**:
    - Designed and implemented a question classification model, achieving an 85% accuracy rate for categorizing educational content.
    - Developed a hierarchical clustering mechanism to intelligently group similar mathematical problems.
    - Leveraged Multi-Armed Bandit (MAB) strategies and Deep Cross Network (DCN) algorithms, driving a 50% surge in user conversion rates.
  - **Student Diagnostic Module**:
    - Designed Item Response Theory (IRT) models for robust assessment of student abilities.
    - Engineered parameter estimation systems to evaluate item-specific characteristics, including difficulty and discrimination metrics.
  - **AI Digital Textbook**:
    - Constructed a scalable backend architecture using FastAPI to deliver AI services such as OCR, automated problem detection, and mathematical expression validation.
    - Developed on-premise OCR systems to meet stringent security requirements.
    - Automated the identification of concept/problem areas in scanned textbooks.
    - Implemented a MathEngine module to compare mathematical expressions for accurate answer validation.

- **Machine Itelligence Lab** — Seoul National Univ.
  Undergraduate Research Intern — *Jun. 2018 - Dec. 2018*
  - **Zero-Shot Machine Translation with Transformer**: Implemented the "Attention Is All You Need" architecture (Vaswani et al., 2017) to enable zero-shot translation across multiple languages.

Programming Skills

- **Languages & Frameworks**: Python, Typescript, SQL, React, Django, FastAPI, Tensorflow
- **Infrastructure**: AWS, GCP, Docker, Kubernetes, CI/CD
- **Tools**: Git, Linux, Databases (Bigquery, Redis, Elasticsearch)