Andrew Kang

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An aspiring researcher from Rice CS, focused on advancing AI-driven HCI & VIS.
Most recent publication with Harvard VCG.

EDUCATION

Rice University **Aug 2019 - Dec 2024**
B.A. in Computer Science | Major GPA: **3.8/4.0**
Relevant Coursework:
Practical ML Reinforcement Learning Senior Design in Robotics
Models for Data Science Parallel Programming Concurrent Programs

EXPERIENCE

Harvard University - Visual Computing Group **Jun - Aug 2024**
Research Intern (Dr. Hanspeter Pfister)
- Designed & developed a **multiplayer VR tool** that aids coach-athlete communication of team movement
- Trained customized YOLOv9 model & transformed video perspectives on PyTorch, to **extract player coordinates for first-person 3D visualization** on handheld devices & HMD
- Led user study with Manchester City FC, Harvard Soccer, & Rice Soccer to assess the strengths of remote training using various perspectives of a coordinated team movement video clip

Tesser **May - Aug 2023**
AI Researcher Intern
- Researched lung tumor detection techniques for the Ontol 3D App (Tesser's Flagship product), which **converts medical images to 3D visualizations** for individual patients
- **Preprocessed, trained, & fine-tuned lung tumor detection models (e.g. nnDetection) on PyTorch** with different datasets (e.g. LUNA16) to achieve a commercially valuable F1-score on Asan Hospital's 3D lung CT dataset
- Supervised Hair Follicle classification/detection project, funded with $60k investment from client company
- **Developed customized Yolov5-Obb models for multi-class detection** of hair follicles & rotated object detection of hairs to perform detailed diagnosis of scalp conditions, for client's hair treatment app

Republic of Korea Army **Sep 2020 - Mar 2022**
Military Police @ North Korean borderline
- Devised an Excel program to track & record 1000+ daily vehicle movements within the Civilian Controlled Zone, overhauling most of documentation system
- Translated for and routinely briefed US Army generals on geographical info & regulations at border (DMZ)

RESEARCH

PanoCoach: Enhancing Tactical Coaching and Communication in Soccer with Mixed-Reality Telepresence, A. Kang, H. Pfister, T. Lin, 2024.
Presented @ IEEE VIS & ACM ISS
- Presented findings with Dr. Hanspeter Pfister & Dr. Tica Lin at IEEE VIS Workshop & ACM ISS

Not all features are created equal: Objective-specific Clustering and Cluster Evaluation, A. Kang, T. Curson, S. Powers, 2024.
Presented @ Opta Forum

- **Only undergrad project accepted for presentation @ Opta Forum** (largest soccer analytics conference)
- Invented an innovative two-step recursive clustering method to group soccer players by style
- With former Assistant GM of Houston Astros, constructed regularized regression for the BAPM evaluation of clusters

Closing Down Spaces: Extending Pitch Control with Monotonic Neural Networks, A. Kang, S. Powers, 2024.
Presented @ Ohio State Univ. S.A. Conf. (Best Presentation Award)
Accepted @ MIT Sloan S.A. Conf. 2025

- Developed innovative metrics (tackle zone & catch zone control) via **a monotonic neural network, adapting prior research on pitch control** to visualize/quantify NFL defense.

Soccer Analytics **Oct 2019 - Jan 2024**
Rice (NCAA) Soccer Analytics Group

- Cooperated with Rice Soccer's stat-rigorous coaching staff & players to finish 1st in conference twice
- Used PyTorch to invent evaluation metrics for team movement training

HONORS

Research:

- Rice Univ. Scholarships from Dept. of CS & Undergrad Research Institute
- Lilie Rice Experiment Fund (Student Venture)
- Best Research Pres. Award @ OSU Conference

Academics:

- Rice Univ. Dept. of Engineering - LJ Walsh Scholarship
- HAFS Dream Scholarship (top of graduating class 2019)

Korean Army:

- Model Soldier Award (top 10 of division for fitness, shooting, academics)

TEACHING

Rice Physics Outreach Program **Nov 2019 - May 2024**
Rice Dept. of Physics

- Taught physics concepts to K-12 students in STEM at Houston Children's Science Museum & Rice Univ.
- Designed, developed, and presented interactive physics demonstrations bi-weekly

Private Tutor (Math) **Aug 2022 - May 2024**
Housamo Community

- Mentored underprivileged students & adults among the Korean immigrant community

SKILLS

Python, Java, C/C++/C#, Go, SQL, Git, AWS, Docker, Numpy, Pytorch, Unity, Solidworks