Welcome to the AI in Medicine Extracurricular Track! A unique interdisciplinary initiative offered by the USC School of Medicine and the USC School of Engineering and Computing, supported by the USC Arnold School of Public Health.

Program Overview: Dive into the transformative world of Artificial Intelligence in medicine through our comprehensive, hands-on extracurricular track. This curriculum is designed to equip medical students with a deep understanding of AI's core concepts and its applications in healthcare—from predictive analytics to medical imaging.

What Will You Learn?
- Fundamentals of AI, Machine Learning, and Data Science
- Expert Systems and Decision Trees
- Neural Information Processing and Artificial Neural Networks
- Training and Testing Neural Networks with Backpropagation
- Predictive Analytics and Adapting to New AI Tools
- Large Language Models in Healthcare
- Medical Imaging Meets Deep Learning
- Data, Ethics, and the Future Landscape of AI in Medicine

Curriculum Structure:
- Spanning Years 2 to 4 of Medical School.
- A series of progressive lectures and projects aligned with your medical education.
- Projects aimed at real-world applications, guided by faculty and aimed at possible publication.

Mentorship and Guidance: Under the expert supervision of Drs. Bonilha and Valafar, alongside other faculty members, students will receive tailored mentorship to deepen their understanding and practical skills in AI applications.
Year-by-Year Breakdown:

Year 2 (MS2)

- **Fall Semester:**
  - Lecture 1: AI, ML, Deep Learning, Data Science.
  - Projects: Apply AI to diagnose epilepsy from MRIs, use neural networks to predict disease progression.

Year 3 (MS3)

- **Fall Semester:**
  - Lecture 3: Neural Networks and Backpropagation.
  - Lecture 4: Neuro Information Processing and ANNs.
  - Lecture 5: Predictive Analytics in Medicine.
  - Projects: Analyze ECG readings for heart disease, support diagnosis with expert systems, predict patient readmission rates.

- **Spring Semester:**
  - Lecture 6: Large Language Models Beyond Chatbots.
  - Projects: Employ ChatGPT for clinical research, detect vascular lesions in scans.

Year 4 (MS4)

- **Fall Semester:**
  - Lecture 8: Data, Ethics, and the Future Landscape of AI in Medicine.
  - Discussion: AI's implications on future medical practices and the doctor-patient relationship.

Getting Started:

- **Introductory Lecture:** May 3rd, 1-2 PM, M1 Classroom. An overview of AI in Medicine.
- **Enrollment:** Summer between M1 and M2 years. Limited to 10 students per class based on grades, MCAT scores, and a passion for AI showcased in an application essay.
- **Application:** REDcap applications open on June 1st and close on June 30th. Decisions will be made before the start of the academic year.
Join Us to Shape the Future of Healthcare with AI! Let AI in Medicine be your pathway to becoming a visionary in healthcare!

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