Engineering Leadership in the Age of AI

July 20-24, 2020

Day One

Time	Topics (include lectures, hands-on work, laboratory work and social events as applicable)	Instructor(s)	Readings/ Assignments
9 am to 5:30 pm	Introduction to course framework on engineering leadership and AI	David Martinez and David Niño	
	AI system architecture lectures	David Martinez	
	- Data conditioning	David Martinez	Lecture complemented with discussion of seminal paper on data conditioning
	- Machine learning taxonomy	David Martinez	Lecture complemented with discussion of seminal paper on machine learning
	- Modern computing	David Martinez	Lecture complemented with discussion of seminal paper on modern computing
	Begin process of forming groups for project-based learning	David Niño	Explore individual interests and capabilities in AI
	Seminal papers on human-machine teaming and robust AI		Evening reading assignments

Day Two

Time	Topics (include lectures, hands-on work, laboratory work and social events as applicable)	Instructor(s)	Readings/ Assignments
8:30 am to 5:30 pm	AI system architecture lectures (cont.)		
	- Human-machine teaming	David Martinez	Lecture complemented with discussion of seminal paper on human-machine teaming
	- Robust AI: verification and validation of AI systems	David Martinez	Lecture complemented with discussion of seminal paper on verification and validation of AI systems
	- Ethical challenges and opportunities for AI	David Niño	Lecture complemented with discussion of seminal paper on ethics for AI
	- Managing and leading organizational cultures around AI	David Niño	Lecture complemented with discussion of seminal paper on organizational cultures
	Hands-on students' demonstration of machine learning algorithm	David Martinez	In-class project using the Raspberry Pi computer and machine learning tools
	Form project-based learning groups	David Niño	In-class project using the

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			Raspberry Pi computer and machine learning tools
6:00 pm to 8:30 pm	Evening group reception with fellow participants		Included with the course

Day Three

Time	Topics (include lectures, hands-on work, laboratory work and social events as applicable)	Instructor(s)	Readings/ Assignments
8:30 am to 5:30 pm	Strategic development model	David Martinez	Developing AI envisioned future and strategic directions
	- Creating a strategic vision and direction around an AI innovation	David Niño	Developing AI envisioned future and strategic directions
	- Communicating a strategic vision and direction around an AI innovation	David Niño	Developing AI envisioned future and strategic directions
	Hands-on development of strategic roadmap for an AI product or service	David Martinez and David Niño	In-class project applying strategic development model
	Convening and developing new teams charged with AI innovations	David Niño	
	- Strategic development model (cont.)	David Martinez	Competitive value proposition, SWOT analysis, and formulating goals and actions
	Hands-on development of strategic roadmap for an AI product or service	David Martinez and David Niño	In-class project applying strategic development model

	Seminal papers on networking in the organization and mentoring AI teams		Evening reading assignments

Day Four

Time	Topics (include lectures, hands-on work, laboratory work and social events as applicable)	Instructor(s)	Readings/ Assignments
8:30 am to 5:30 pm	Engineering leadership principles (cont.)		
	- Strengthening your abilities to implement new innovations: Leading with power and influence	David Niño	Lecture complemented with discussion of seminal paper on leading AI teams
	- Networking in the organization and mentoring AI teams	David Niño	Lecture complemented with discussion of seminal paper on establishing resilient teams
	Summary of main takeaways on engineering leadership in the age of AI	David Martinez and David Niño	Summary of key core competencies learned in the course
	Presentation by class teams of AI strategic roadmap for a product or service		Three teams' presentations. Each team presents for 25 min. to industry/academic panel

Day Five

Time	Topics (include lectures, hands-on work, laboratory work and social events as applicable)	Instructor(s)	Readings/ Assignments
8:30 pm to 12:00 pm	Presentation by class teams of AI strategic roadmap for a product or service		Six teams' presentations. Each team presents for 25 min. to industry/academic panel
12:00 pm to 12:30	Issuing of course certificates		