

Fall 2022 VIP Lab Lecture CRNS

Course	VIP F22 Section	CRN	Description	Instructor
VIP 47920	PD1	10007	Professional Development	Carla Zoltowski
VIP 17920	PD1	10518		
VIP 27920	PD1	10519		
VIP 37920	PD1	10527		
VIP 47921	PD1	10529		
VIP 47922	PD1	10522		
VIP 47920	PD2	27925		
VIP 17920	PD2	27928		
VIP 27920	PD2	27929		
VIP 37920	PD2	27924		
VIP 47921	PD2	27926		
VIP 47922	PD2	27927		
VIP 47920	PD3	27934		
VIP 17920	PD3	27931		
VIP 27920	PD3	27932		
VIP 37920	PD3	27933		
VIP 47921	PD3	27935		
VIP 47922	PD3	27936		
VIP 47920	1	10008	Beyond 5G. Investigate new communication and signal processing technologies for the next generation wireless communication systems. For junior and senior year students, ECE302 is a prerequisite or corequisite. There is no restriction for sophomore students. ECE264 is strongly recommended for junior and senior year students.	David Love, Chih-Chun Wang, James Krogmeier
VIP 17920	1	10531		
VIP 27920	1	10532		
VIP 37920	1	10535		
VIP 47921	1	10539		
VIP 47922	1	10533		
VIP 47920	2	10027	Laser-assisted Processing (LAP): This team is to perform research work in the laser-based manufacturing and materials processing area.	Benxin Wu
VIP 17920	2	10540		
VIP 27920	2	10542		
VIP 37920	2	10549		
VIP 47921	2	10551		
VIP 47922	2	10548		
VIP 17911	2	13500		
VIP 47920	3	10048	Autonomous Motorsports Purdue (AMP): Autonomous racing project including both software and hardware aspects, with emphasis on path planning, sensor fusion, and machine learning techniques.	Samuel Labi
VIP 17920	3	10553		
VIP 27920	3	10554		
VIP 37920	3	10562		
VIP 47921	3	10565		
VIP 47922	3	10556		
VIP 17911	3	13501		
VIP 47920	5	10072	Earth History Visualization: This team has been very successful during the past years in making our planet's history easily accessible to both public and scientific audiences. Our current goals are (1) user-friendly web-applications for Earth-history visualization, (2) applying data-mining and machine-learning techniques to the vast databases to unravel our planet's secrets, and (3) be an active part of the new "Deep-Time Digital Earth" big-data science program of the Internat. Union Geol. Sciences/UNESCO.	James Ogg, Aaron Ault
VIP 17920	5	10579		
VIP 27920	5	10580		
VIP 37920	5	10631		
VIP 47921	5	10638		
VIP 47922	5	10613		
VIP 17911	5	13502		
VIP 47920	6	10079	Earth Remote Sensing with Signals of Opportunity: Design instrumentation and conduct field experiments to collect VVHF/P-band and S-band satellite signals and evaluate their qualities for use in Earth remote sensing.	James L Garrison
VIP 17920	6	10654		
VIP 27920	6	10662		
VIP 37920	6	10730		
VIP 47921	6	10743		
VIP 47922	6	10672		
VIP 17911	6	13505		
VIP 47920	7	10086	(DiY ExO) Do-It-Yourself Exoskeleton: Build a wearable exoskeleton to prevent muscle injuries in strenuous physical work settings around the world. Develop a marketing strategy to share your technical plan with the global community.	Milton Aguirre
VIP 17920	7	10747		
VIP 27920	7	10756		
VIP 37920	7	10761		
VIP 47921	7	10774		
VIP 47922	7	10760		
VIP 17911	7	13507		
VIP 47920	9	10103	Program Analysis as a Service: The goal of this team is to develop an analysis platform for analyzing computer programs and making it available as a service.	Aravind Kumar Machiry
VIP 17920	9	10879		
VIP 27920	9	10881		
VIP 37920	9	10901		
VIP 47921	9	10908		
VIP 47922	9	10889		
VIP 17911	9	13516		

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VIP 47920	11	10135	Purdue Baja Racing: This team designs, builds, and races a single-seat off-road buggy. Instructor Permission Required.	Todd Nelson
VIP 17920	11	11042		
VIP 27920	11	11046		
VIP 37920	11	11067		
VIP 47921	11	11068		
VIP 47922	11	11059		
VIP 17911	11	13519		
VIP 47920	14	10195	SoCET - System on Chip Extension Technologies: The primary objective of the SoCET team is to provide students with a comprehensive System on Chip design, fabrication, and test experience that is as similar to industry practice as possible.	Mark C. Johnson; Matthew Swabey
VIP 17920	14	11140		
VIP 27920	14	11141		
VIP 37920	14	11158		
VIP 47921	14	11168		
VIP 47922	14	11152		
VIP 17911	14	13517		
VIP 47920	16	10211	NanoHUB: Growing Global Impact Data Analytics and Machine Learning - NanoHUB serves over 1.4 million visitors annually in over 172 countries. Can we understand them better through data analytics and foster the growth of the 18,000 users who run online simulations?	Gerhard Klimeck
VIP 17920	16	11215		
VIP 27920	16	11230		
VIP 37920	16	11245		
VIP 47921	16	11246		
VIP 47922	16	11235		
VIP 17911	16	13511		
VIP 47920	17	10212	Video Analytics for Understanding Human Behavior: This team focuses on using multiple cameras to track human use of space and behaviors within the built environment.	David Barbarash
VIP 17920	17	11257		
VIP 27920	17	11293		
VIP 37920	17	11304		
VIP 47921	17	11313		
VIP 47922	17	11303		
VIP 17911	17	13520		
VIP 47920	18	10213	Image Processing and Analysis: This team uses machine learning strategies for image recognition and video processing research applications.	Edward J Delp, Carla B Zoltowski
VIP 17920	18	11315		
VIP 27920	18	11316		
VIP 37920	18	11318		
VIP 47921	18	11320		
VIP 47922	18	11317		
VIP 17911	18	13522		
VIP 47920	20	10324	Data Science for Smart Cities project aims to conduct interdisciplinary research to develop data analytics tools using robotics and autonomous sensing for condition assessment of urban systems.	Mohammad Jahanshahi
VIP 17920	20	11357		
VIP 27920	20	11365		
VIP 37920	20	11373		
VIP 47921	20	11383		
VIP 47922	20	11366		
VIP 17911	20	13545		
VIP 47920	321	27940	Tracsat - This team will build and test various subsystems of nanosatellite and laser communications system.	Alexey Shashurin
VIP 17920	321	27937		
VIP 27920	321	27938		
VIP 37920	321	27939		
VIP 47921	321	27941		
VIP 47922	321	27942		
VIP 17911	321	27981		
VIP 47920	322	27946	AFRL-UAS: Hands-on Unmanned Aerial Systems research at Purdue's world class indoor motion capture environment, Hangar 4. Direct collaboration and support from AFRL (Air Force Research Labs) Aerospace Systems Directorate.	James Goppert
VIP 17920	322	27943		
VIP 27920	322	27944		
VIP 37920	322	27945		
VIP 47921	322	27947		
VIP 47922	322	27948		
VIP 17911	322	27982		
VIP 47920	23	10351	TensorFlow Model Garden: This team's goal is to create a standard for worldwide machine learning model development. We are creating high-quality implementations of state-of-the-art machine learning models.	James Davis
VIP 17920	23	11485		
VIP 27920	23	11487		
VIP 37920	23	11525		
VIP 47921	23	11526		
VIP 47922	23	11512		
VIP 17911	23	13561		

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VIP 47920	24	10363	Video Analytics for Understanding Animal Behaviour (VAA): Team will build software that applies machine learning techniques to video data to analyze animal behaviour.	Amy Reibman
VIP 17920	24	11527		
VIP 27920	24	11529		
VIP 37920	24	11541		
VIP 47921	24	11545		
VIP 47922	24	11532		
VIP 17911	24	13535		
VIP 47920	25	10382	Alternative Energy Grid Integration and Systems (AEGIS) team: This team uses advanced methods to analyze and design modern electric power components and systems, such as electric vehicles and smart grids.	Dionysios Aliprantis
VIP 17920	25	11549		
VIP 27920	25	11550		
VIP 37920	25	11554		
VIP 47921	25	11557		
VIP 47922	25	11552		
VIP 47920	26	10396	Auto Drone: Drones (also called unmanned aerial vehicles, UAVs) can be used to handle dangerous tasks, such as inspecting buildings after earthquakes. Drones typically rely on computer vision for decision making, such as recognizing obstacles or objects of interest. This project aims to develop the solutions that can recognize objects captured by cameras mounted on drones.	Qiang Qiu; Wei Zakharov
VIP 17920	26	11562		
VIP 27920	26	11568		
VIP 37920	26	11594		
VIP 47921	26	11625		
VIP 47922	26	11570		
VIP 17911	26	13536		
VIP 47920	29	10448	Race to Zero (R2Z): The "Race-to-Zero" initiative provided the inspiration for a Virtual Experiential Intercultural Learning student design project. The goal is to integrate hydrogen fuel cell technologies with a solar photovoltaic microgrid for a proposed mining operation in Peru.	John W. Sheffield
VIP 17920	29	11711		
VIP 27920	29	11721		
VIP 37920	29	11724		
VIP 47921	29	11725		
VIP 47922	29	11722		
VIP 17911	29	13545		
VIP 47920	30	10450	Formula SAE - This organization has the goal of designing, testing, and manufacturing a competitive racecar. Instructor permission required.	Todd Nelson
VIP 17920	30	11726		
VIP 27920	30	11735		
VIP 37920	30	11751		
VIP 47921	30	11754		
VIP 47922	30	11748		
VIP 17911	30	13568		
VIP 47920	231	27908	FEMTA Suborbital Spaceflight Test. FEMTA team will design and develop the hardware and software for a microgravity experiment to be flown in space on a reusable suborbital vehicle.	Alina Alexeenko
VIP 17920	231	27905		
VIP 27920	231	27906		
VIP 37920	231	27907		
VIP 47921	231	27909		
VIP 47922	231	27910		
VIP 47920	33	10504	Lunabotics: The team will design, build, test and prepare an autonomous robot for a lunar mining competition sponsored by NASA.	Carla B Zoltowski/Nichole Ramirez
VIP 17920	33	11822		
VIP 27920	33	11824		
VIP 37920	33	11833		
VIP 47921	33	11836		
VIP 47922	33	11832		
VIP 17911	33	13556		
VIP 47920	36	10513	Image Based Mobile Phone Applications: The students will develop mobile phone applications that captures images of the scene and extracts information from them using tools such as machine learning.	Edward J Delp, Carla B Zoltowski
VIP 17920	36	11900		
VIP 27920	36	11914		
VIP 37920	36	11920		
VIP 47921	36	11921		
VIP 47922	36	11919		
VIP 17911	36	13559		
VIP 47920	37	10516	Purdue Electric Racing (PER): This team will design, build, and tests electrical systems and power electronics for an electric vehicle. Instructor Permission Required.	Todd Nelson
VIP 17920	37	11923		
VIP 27920	37	11924		
VIP 37920	37	11945		
VIP 47921	37	11951		
VIP 47922	37	11927		

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VIP 47920	338	27952	Child Automated Speech-to-Text Team (CAST): The focus of this project is developing an automated speech-to-text program that works with young children (ages 3-5). The team will develop the algorithms for transcription and a functional interface that is user-friendly.	David J Purpura
VIP 17920	338	27949		
VIP 27920	338	27950		
VIP 37920	338	27951		
VIP 47921	338	27953		
VIP 47922	338	27954		
VIP 17911	338	27986		
VIP 47920	41	13270	eHealth - We develop mobile and web-based digital health applications to improve health care operations so that community residents can maintain/improve their health outcomes and community-based care providers can plan their workforce in a more cost-benefit manner.	Nan Kong; Nicole Adams
VIP 17920	41	13266		
VIP 27920	41	13267		
VIP 37920	41	13269		
VIP 47921	41	13271		
VIP 47922	41	13272		
VIP 17911	41	13567		
VIP 47920	44	13294	Sigstore (Project Rekor) - Software Supply Chain Transparency: this team will work with industry and open source partners to build software infrastructure to cryptographically verify provenance of software	Santiago Torres-Arias
VIP 17920	44	13288		
VIP 27920	44	13291		
VIP 37920	44	13293		
VIP 47921	44	13295		
VIP 47922	44	13299		
VIP 47920	245	27914	Solar Sail: Solar sail is a technology to propel spacecrafts using the optical pressure from the sun. Two video cameras will monitor the shape of the sail to estimate the optical pressure and the acceleration.	Alina Alexeenko; Anthony Cofer
VIP 17920	245	27911		
VIP 27920	245	27912		
VIP 37920	245	27913		
VIP 47921	245	27915		
VIP 47922	245	27916		
VIP 17911	245	27976		
VIP 47920	46	13325	Virtual Super-resolution Optics with Reconfigurable Swarms (VISORS) is an NSF sponsored space mission which will deploy a 'distributed space telescope' - a three-piece CubeSat formation that will allow researchers to obtain high-resolution imagery of Sun's surface. Undergraduate students on Purdue-VISORS will use modern spacecraft aerodynamics and spacecraft thermal analysis simulations to counteract the space environment effects on VISOR spacecraft and design a safer mission.	Petr Kazarin (primary); Alina Alexeenko
VIP 17920	46	13317		
VIP 27920	46	13321		
VIP 37920	46	13323		
VIP 47921	46	13328		
VIP 47922	46	13338		
VIP 47920	48	13375	WHERE'S MY STUFF? : This team aims to identify problems of urgent needs in industries affected by COVID-19, evaluate viable solutions and technologies, and build prototypes for proof-of-concept within one semester.	Steve Dunlop
VIP 17920	48	13369		
VIP 27920	48	13372		
VIP 37920	48	13373		
VIP 47921	48	13385		
VIP 47922	48	13387		
VIP 17911	48	13569		
VIP 47920	50	13224	QUantum Integrated Photonics (QUIP): This team will use EM simulation software to design photonic integrated circuits for quantum networking applications.	Andrew Weiner
VIP 17920	50	13219		
VIP 27920	50	13220		
VIP 37920	50	13221		
VIP 47921	50	13229		
VIP 47922	50	13233		
VIP 17911	50	13558		
VIP 47920	51	13245	The Study Spot Availability Tracker team is working on project that will make finding study spots easier for students by allowing them to check the availability of study spots on campus in real time.	Xiaokang Qiu
VIP 17920	51	13234		
VIP 27920	51	13237		
VIP 37920	51	13239		
VIP 47921	51	13250		
VIP 47922	51	13252		
VIP 47920	353	27960	MEP: Go-Kart. In collaboration with the Minority Engineering Program (MEP), the GoKart team will design, build, and test go-karts for Purdue's Grand Prix competition.	Rick Womack
VIP 17920	353	27955		
VIP 27920	353	27958		
VIP 37920	353	27959		
VIP 47921	353	27961		
VIP 47922	353	27962		
VIP 17911	353	27992		
VIP 17911	LM1	14025	Milestones: Automotive (Fall only)	
VIP 17911	LM3	14030	Milestones: Grand Challenges (Fall only)	