

Spring 2022 VIP Lab Lecture CRNS

Course	VIP SP22 Section	CRN	Description	Instructor
VIP 47920	PD1	22499	Professional Development	Carla Zoltowski
VIP 17920	PD1	22066		
VIP 27920	PD1	22070		
VIP 37920	PD1	22073		
VIP 47921	PD1	22500		
VIP 47922	PD1	22508		
VIP 47920	1	21831	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	21823		
VIP 27920	1	21824		
VIP 37920	1	21826		
VIP 47921	1	21832		
VIP 47922	1	21833		
VIP 17912	1	21714	Laser-assisted Processing (LAP): This team is to perform research work in the laser-based manufacturing and materials processing area.	Benxin Wu (wu65@purdue.edu)
VIP 47920	2	21838		
VIP 17920	2	21835		
VIP 27920	2	21836		
VIP 37920	2	21837		
VIP 47921	2	21839		
VIP 47922	2	21840	Autonomous Motorsports Purdue (AMP): Autonomous racing project including both software and hardware aspects, with emphasis on path planning, sensor fusion, and machine learning techniques.	Aly El Gamal (elgamala@purdue.edu)
VIP 17912	2	21717		
VIP 47920	3	21846		
VIP 17920	3	21842		
VIP 27920	3	21843		
VIP 37920	3	21844		
VIP 47921	3	21847	Build My Startup: This team provides opportunities for student entrepreneurs to work with experienced entrepreneurs and build the students' startup companies. This team is designed for student entrepreneurs that are already building their startups. The students must have already registered their companies before joining the team. This team is designed for the companies in the execution and expansion stages.	Steve Wereley; Byung-Hoo Jung; Tillmann Kubis
VIP 47922	3	21848		
VIP 17912	3	21720		
VIP 47920	4	21857		
VIP 17920	4	21851		
VIP 27920	4	21853		
VIP 37920	4	21854	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 47921	4	21858		
VIP 47922	4	21867		
VIP 47920	5	22075		
VIP 17920	5	21870		
VIP 27920	5	21871		
VIP 37920	5	22074	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 47921	5	22077		
VIP 47922	5	22108		
VIP 17912	5	21743		
VIP 47920	6	22139		
VIP 17920	6	22112		
VIP 27920	6	22119	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 (amachiry@purdue.edu)
VIP 37920	6	22130		
VIP 47921	6	22140		
VIP 47922	6	22142		
VIP 17912	6	21762		
VIP 47920	9	22184		
VIP 17920	9	22180	Purdue Baja Racing: This team designs, builds, and races a single-seat off-road buggy. Instructor Permission Required.	Todd Nelson
VIP 27920	9	22181		
VIP 37920	9	22182		
VIP 47921	9	22185		
VIP 47922	9	22186		
VIP 17912	9	21804		
VIP 47920	11	22208	Purdue Baja Racing: This team designs, builds, and races a single-seat off-road buggy. Instructor Permission Required.	Todd Nelson
VIP 17920	11	22198		
VIP 27920	11	22201		
VIP 37920	11	22204		
VIP 47921	11	22209		
VIP 47922	11	22210		

Spring 2022 VIP Lab Lecture CRNS

Course	VIP SP22 Section	CRN	Description	Instructor
VIP 47920	13	22230	Research and Development in IoT and Edge Processing in the world of Industry 4.0 (Bechtel Center): To keep our students safe, and to understand the use of the center, develop and deploy an ever-evolving network of off-the-shelf and full custom IoT platforms employing machine learning and edge processing to monitor usage, verify and enforce safety and gather analytic data.	Matthew Swabey
VIP 17920	13	22217		
VIP 27920	13	22224		
VIP 37920	13	22227		
VIP 47921	13	22241		
VIP 47922	13	22258		
VIP 17912	13	21810		
VIP 47920	14	22262	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	22259		
VIP 27920	14	22260		
VIP 37920	14	22261		
VIP 47921	14	22264		
VIP 47922	14	22265		
VIP 17912	14	21811		
VIP 47920	15	22269	Computer Vision for Forest Inventory Analysis (CVFIA): The value of a tree can vary dramatically by its size, species, shape, and many other parameters. forest inventory analysis (FIA) surveys a region of a forest to evaluate the current economic value of that region. This team will create a system that can perform FIA automatically. This system is equipped with sensors to acquire and analyze the data. The team's goal is to create a prototype of such a system and to demonstrate its effectiveness for improving the speed and accuracy of FIA.	Guofan Shao; Keith Woeste
VIP 17920	15	22266		
VIP 27920	15	22267		
VIP 37920	15	22268		
VIP 47921	15	22270		
VIP 47922	15	22271		
VIP 17912	15	21814		
VIP 47920	16	22276	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	22272		
VIP 27920	16	22273		
VIP 37920	16	22275		
VIP 47921	16	22279		
VIP 47922	16	22280		
VIP 17912	16	21816		
VIP 47920	17	22291	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	22282		
VIP 27920	17	22286		
VIP 37920	17	22289		
VIP 47921	17	22292		
VIP 47922	17	22300		
VIP 17912	17	21817		
VIP 47920	18	22321	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	22302		
VIP 27920	18	22308		
VIP 37920	18	22309		
VIP 47921	18	22322		
VIP 47922	18	22327		
VIP 17912	18	21818		
VIP 47920	20	22367	Data Analytics 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	22363		
VIP 27920	20	22364		
VIP 37920	20	22366		
VIP 47921	20	22369		
VIP 47922	20	22372		
VIP 17912	20	21820		
VIP 47920	21	22387	Tracsat - This team will build and test various subsystems of nanosatellite and laser communications system.	Alexey Shashurin (ashashur@purdue.edu)
VIP 17920	21	22373		
VIP 27920	21	22374		
VIP 37920	21	22378		
VIP 47921	21	22388		
VIP 47922	21	22389		
VIP 17912	21	21821		
VIP 47920	322	27892	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	27888		
VIP 27920	322	27889		
VIP 37920	322	27891		
VIP 47921	322	27893		
VIP 47922	322	27894		
VIP 17912	322	28117		

Spring 2022 VIP Lab Lecture CRNS

Course	VIP SP22 Section	CRN	Description	Instructor
VIP 47920	23	22414	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	22402		
VIP 27920	23	22404		
VIP 37920	23	22406		
VIP 47921	23	22415		
VIP 47922	23	22417		
VIP 17912	23	27838		
VIP 47920	25	22435	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	22431		
VIP 27920	25	22432		
VIP 37920	25	22434		
VIP 47921	25	22440		
VIP 47922	25	22442	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 47920	26	22447		
VIP 17920	26	22443		
VIP 27920	26	22444		
VIP 37920	26	22445		
VIP 47921	26	22449		
VIP 47922	26	22450		
VIP 17912	26	27842	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; William Hutzel?? remove
VIP 47920	29	22471		
VIP 17920	29	22464		
VIP 27920	29	22466		
VIP 37920	29	22470		
VIP 47921	29	22473		
VIP 47922	29	22475		
VIP 17912	29	27845	Formula SAE - This organization has the goal of designing, testing, and manufacturing a competitive racecar. Instructor permission required.	Todd Nelson
VIP 47920	30	22480		
VIP 17920	30	22476		
VIP 27920	30	22477		
VIP 37920	30	22479		
VIP 47921	30	22481		
VIP 47922	30	22482	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 47920	231	27195		
VIP 17920	231	27192		
VIP 27920	231	27193		
VIP 37920	231	27194		
VIP 47921	231	27196	Robotic Exploration: the team will design, build and test a set of land and water-based robots to monitor the physico-chemical conditions of watersheds.	Eric Nauman (Preet)
VIP 47922	231	27197		
VIP 47920	32	22497		
VIP 17920	32	22493		
VIP 27920	32	22495		
VIP 37920	32	22496		
VIP 47921	32	21873	Lunabotics: The team will design, build, test and prepare an autonomous robot for a lunar mining competition sponsored by NASA.	Eric Nauman (Preet)
VIP 47922	32	21874		
VIP 17912	32	27849		
VIP 47920	33	21882		
VIP 17920	33	21876		
VIP 27920	33	21877		
VIP 37920	33	21881	SWARMS: Multi-Agent Control Simulation Platform - Creating a customizable drone swarm control and simulation platform utilizing the cloud.	Shreyas Sundaram
VIP 47921	33	21883		
VIP 47922	33	21884		
VIP 17912	33	27850		
VIP 47920	34	21889		
VIP 17920	34	21885		
VIP 27920	34	21886		
VIP 37920	34	21887	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 47921	34	21890		
VIP 47922	34	21891		
VIP 17912	34	27852		
VIP 47920	36	21910		
VIP 17920	36	21904		
VIP 27920	36	21907		
VIP 37920	36	21909		
VIP 47921	36	21822		
VIP 47922	36	21987		
VIP 17912	36	27854		

Spring 2022 VIP Lab Lecture CRNS

Course	VIP SP22 Section	CRN	Description	Instructor
VIP 47920	37	21995	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	21991		
VIP 27920	37	21992		
VIP 37920	37	21994		
VIP 47921	37	21997		
VIP 47922	37	21999		
VIP 47920	38	22005	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	38	22000		
VIP 27920	38	22002		
VIP 37920	38	22003		
VIP 47921	38	22007		
VIP 47922	38	22008		
VIP 47920	39	22012	Applied Ergonomics and Safety - The team will develop research skills and practical data mining skills for creating publications and applications in industry in areas with emerging need and limited expertise at present	Vincent Duffy
VIP 17920	39	22009		
VIP 27920	39	22010		
VIP 37920	39	22011		
VIP 47921	39	22013		
VIP 47922	39	22015		
VIP 17912	39	27857		
VIP 47920	241	27183	AI for Happiness - The goal of our project is to develop a scalable digital platform, for use by our collaborator Empress EMS, a NYC-based Community Paramedics, which relays meaningful self-reported health data in real time from their clients. This will improve the quality of care provided as well as the efficiency of their community support programs.	Nan Kong
VIP 17920	241	27198		
VIP 27920	241	27181		
VIP 37920	241	27182		
VIP 47921	241	27184		
VIP 47922	241	27185		
VIP 47920	43	22055	LyoHUB - Design, Development, and Testing of Wireless Sensor for Vial Stress Measurement During Lyophilization. Team members will gain valuable hands-on experience in circuit design, sensor fabrication, wireless networking, and data analysis.	Andrew Strongrich (primary); Alina Alexeenko (Jennifer Gray - not in myPurdue)
VIP 17920	43	22051		
VIP 27920	43	22052		
VIP 37920	43	22053		
VIP 47921	43	22056		
VIP 47922	43	22057		
VIP 17912	43	27862		
VIP 47920	44	21914	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	21911		
VIP 27920	44	21912		
VIP 37920	44	21913		
VIP 47921	44	21917		
VIP 47922	44	21918		
VIP 17912	44	27865		
VIP 47920	245	29447	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	29444		
VIP 27920	245	29445		
VIP 37920	245	29446		
VIP 47921	245	29448		
VIP 47922	245	29449		
VIP 47920	46	21950	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	21945		
VIP 27920	46	21946		
VIP 37920	46	21947		
VIP 47921	46	21954		
VIP 47922	46	21958		
VIP 47920	48	21974	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	21971		
VIP 27920	48	21972		
VIP 37920	48	21973		
VIP 47921	48	21976		
VIP 47922	48	21977		
VIP 17912	48	27873		
VIP 47920	50	22062	QUantum Integrated Photonics (QUIP): This team will use data from benchtop quantum optics experiments and EM simulations to design photonic integrated circuits for quantum networking	Andrew Weiner
VIP 17920	50	22058		
VIP 27920	50	22059		
VIP 37920	50	22060		
VIP 47921	50	22063		
VIP 47922	50	22064		
VIP 17912	50	27876		

Spring 2022 VIP Lab Lecture CRNS

Course	VIP SP22 Section	CRN	Description	Instructor
VIP 47920	51	27912	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	27909		
VIP 27920	51	27910		
VIP 37920	51	27911		
VIP 47921	51	27913		
VIP 47922	51	27914		
VIP 47920	52	27900	AISUM: AI for Small Unit Maneuver - The team will help with beta testing for the U.S. Navy Challenge. More information is available at https://www.challenge.gov/challenge/nswc-crane-aisum-prize-challenge/	Aly El Gamal
VIP 17920	52	27897		
VIP 27920	52	27898		
VIP 37920	52	27899		
VIP 47921	52	27901		
VIP 47922	52	27902		
VIP 47920	353	28148	MEP: Go-Kart	Rick Womack
VIP 17920	353	28145		
VIP 27920	353	28146		
VIP 37920	353	28147		
VIP 47921	353	28149		
VIP 47922	353	28150		
VIP 17912	353	28118		