California Science and Technology University (CSTU) is an academic institution of higher learning committed to providing a quality education to individuals pursuing the development of rational, systematic, and critical thinking while striving to succeed in their chosen profession. CSTU aims to equip students with the ability to evaluate, analyze, and synthesize information and to develop critical thinking and problem-solving skills applicable in their career environment. The mission of CSTU is to fulfill the educational expectations of its students and faculty and to produce professionals capable of meeting the challenges in their respective fields.

California Science and Technology University is accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC), recognized by the U.S. Department of Education.

INTERNATIONAL STUDENTS

CSTU is an ideal destination for international students with admission requirement: GPA 2.5+2, TOEFL IBT 60+ or IELTS 6+, Diploma copy and official transcripts in English, Financial support documents.

An admission decision will be sent to your email address. CSTU will issue an I-20 form for you to apply for the US visa.

International students will be granted a work permit (OPT) for three years after graduation. An additional benefit for students with children is free admission to Silicon Valley's best public schools for their kids. Also, Silicon Valley's diverse culture provides a friendly environment for international students to settle in. If you are interested in building a career in Silicon Valley, studying at CSTU is a perfect starting point!

CSTU offers 03 following programs:

(1) Master of Science in Computer Systems and Engineering (MSCSE)
https://www.cstu.edu/pages/academic/programs/MSCSE.html?v=90709eed62
The MSCSE program is designed for students who intend to become professional engineers in the high-technology industry, as well as for those who desire a modern, general education based on the problems and the promises of a technological society.

Length: 24 Month
Include: 10 Courses
Semester Units: 30
Prerequisites: Undergraduate Degree
What You'll Study:

a) To provide each student the best education by tailoring each student's study plan based on the student's background and interests. To provide in-depth professional training with state-of-the-art learning resources to the student.

b) To provide relevant laboratory experience throughout each program as an integral part of the education.

c) To nurture a learning environment which leads to professional values recognizing high quality and integrity in a true engineer.

d) To provide graduate students an opportunity to pursue advanced training and professional development to practice their profession with increased competence.

Courses: A minimum of 30 semester units of graduate study are required for the Master of Science in Computer Systems and Engineering program (MSCSE). They include a few required core courses, a number of elective courses based on the student's selection of technical pursuit, and a required capstone course. The computer systems engineering coursework will develop technical skills beneficial to the student for career planning. The student also has the opportunity to take elective courses outside of computer systems engineering to broaden the student's skillset. The student must meet prerequisite requirements when taking any course. Upon clearing background preparation work, the student starts to take courses to meet the degree requirements. The student must begin his/her graduate study with the subjects listed in the Core Course section.

List of courses:
● CSE520 Advanced Operating System ● CSE540 Advanced Data Structure and Algorithms ● CSE550 Advanced Java Programming for Internet Application ● CSE552 Full Stack Development ● CSE554 Internet and Network Security ● CSE556 Database System ● CSE558 Machine Learning ● CSE572 Artificial Intelligence application using TensorFlow ● CSE574 Deep Learning ● CSE590 Special Topics ● CSE591 Seminars ● CSE600 Python for AI ● CSE604 Machine Learning Fundamental ● CSE606 AI Application with GAN ● CSE608 AI Application with Reinforcement Learning ● CSE610 Cloud Computing and Security ● CSE612 AI Application in Computer Vision ● CSE618 Algorithm in Python ● CSE620 Deep Learning with PyTorch ● CSE622 Big Data Analytics with Apache Spark ● CSE624 Network Security ● CSE628 Machine Learning for NLP ● CSE630 Data Engineering with SQL and NoSQL ● CSE632 Introduction to Cloud Computing ● CSE636 DevOps ● CSE638 Deep Learning with TensorFlow ● CSE650 Digital Integrated Circuit Design using FPGA

Course Description:

CSE520 Advanced Operating System (3 credits) This course offers graduate students an in-depth understanding and hands-on experience in modern understanding and hands-on experience in modern operating system design and implementation. Topics include progress, memory, file system, I/O, deadlocks, operating system implementations, modern distributed and network system architectures, communication and synchronization in distributed systems, thread and process scheduling. Projects are required. CSE540 Advanced Data Structure and Algorithms (3 credits) This course is designed to teach efficient use of data structures and how to design an algorithm to solve a practical problem. Students will learn the logical relations between data structures associated with the real problem and its physical representation. Topics include algorithms and algorithm efficiency analysis, data organization and the applications. Practical use of the arrays, stacks, queues, single and double linked lists, trees, graphs, and heaps will be covered in depth. The class based data models with OOB design concept will also be introduced. Page 52 of 65 CSE550 Advanced Java Programming for Internet Application (3 credits) This course learns all the basics and advanced features of Java programming. It starts with the basics and Leads to Advance features of Java in detail. This course covered and explained several topics of the latest Java 8 Features in detail. Topics include– Lambdas. Java 8 Functional interface, Stream and Time API in Java 8. This course teaches the students how to develop, debug and Java Internet applications. The course starts with keywords, syntax, and constructs that form the core of the Java language and then it leads the students to advanced features of java, including multithreaded programming and Applets. Students get a chance to review the fundamentals and learn the advanced topics. The previous programming experience in C/C++ is required for this course. CSE552 Full Stack Development (1.5 units) Full Stack Development course will enable you to build interactive

and responsive web applications using both front-end and back-end technologies. This course starts with basics of Web Development, covers JavaScript and jQuery essentials, guides you to build remarkable user interface via Angular or React, helps you to build scalable backend applications using Express & Node.js plus manage data using MongoDB. You will complete the course with a small project. CSE554 Internet and Network Security (3 credits) The course addresses security risks in computer networks and computer systems and the fundamental techniques used to reduce these risks. It also gives an introduction to the role of security as an enabling technology for electronic commerce. The course is divided into four major parts: (1) Fundamentals of Network Security and System Security, (2) Fundamentals of Cryptography: This is probably the most important part of this course. This part involves basic reasoning and understanding of cryptography. This includes the fundamentals of symmetric and asymmetric key systems, message integrity (hashing functions), digital signature, digital certificate, key management, and familiarity with common standards for these techniques; (3) Cryptography in real world applications: Several security applications will be discussed, including PGP, SSL, IPsec, with SSL be the focus- major components of SSL protocol and its role in electronic commerce. Students will learn how to set up an https web server, and how to apply and integrate digital certificate with browsers, web servers, and communication protocols on the Web; (4) Hands-on Cryptography: This part is for those who are interested in implementing security software using cryptography. CSE556 Database System (3 credits) This course provides an in-depth understanding of the Database Management System. Emphasis is on the latest database architecture, database configuration and administration. Topics include logical/physical database layout, database server processes, database creation, various database physical objects; client/server configuration, multi-threaded server configuration, database storage management, database security, database utilities, database monitoring, partitions, and Page 53 of 65 database backup/recovery methods. This course specifically details procedural extensions to SQL to develop stored procedures, functions, packages and database triggers. In addition, it covers database performance tuning from an application development point of view by exploring query optimizer, database hints, and various database access methods. Cloud Database Development and Management explains how student can take advantage of the cloud environment to develop their own fully functioning database systems. CSE558 Machine Learning (3 credits) This course will teach methods and techniques for using stored data to make decisions. The student will learn data types including operational or transactional data such as data for sales, cost, and inventory; nonoperational data such as forecast data and macroeconomic data; and meta data, and learn their patterns, associations, or relationships, and how to use the information for decision making. Statistical learning concepts such as regression, classification, decision trees and model reduction techniques such as principal component analysis will be introduced. Specific examples of engineering and businesses using data mining techniques will be given in the course. The student is required to work on course projects by using modern data analysis software and referring to cases studied. CSE572 Artificial Intelligence Application Using TensorFlow (3 credits) This course will teach the fundamentals and contemporary usage of the TensorFlow library for deep learning projects. The goal is to help students understand the graphical computational model of TensorFlow, explore the functions it has to offer, and learn how to build and structure models best suited for a deep learning project. The main content of the course includes the following parts, TensorFlow basics, Linear and Logistic Regression and TensorFlow Serving, Deep Neural Network, regularization, hyper-parameter tuning, Convolutional neural network, LSTM and Seq2seq, and Reinforce Learning. Through the teaching, students will use TensorFlow to build models of different complexity, from simple linear/logistic regression to convolutional neural networks and recurrent neural networks to solve tasks such as word embeddings, translation, optical character recognition. Students will also learn best practices to structure a model and manage research experiments. CSE574 Deep Learning (3 credits) Deep Learning has become the most important skill in AI. This course will help students become good at Deep Learning. In this course, students will learn the foundations of Deep Learning, understand how to build neural networks, and learn how to apply machine learning knowledge in real projects. The course will teach Convolutional networks, RNNs, LSTM, Adam, Dropout, Batch Norm, and more.

Students will work on projects from autonomous driving, sign reading, and natural language processing. Students will master not only the theory, but also see how it is applied in industry. Students will practice all these ideas in Python and in TensorFlow, which will be covered in the course too. After this course, students will be able to apply deep learning to their work. Students will complete a real project at the end. CSE590 Special Topics (0.5 - 1.5 credits) Special topics courses include courses that address a current or timely topic, that are in a "pilot" phase before being offered on an ongoing basis, or that are known to be one-time offerings. Special topics course offerings can vary from term to term. Each special topic course should add the keyword on the course title to identify the course content. CSE591 Seminars (0.5 - 1.5 credits) This course is meant to give students opportunities to explore topics in broad areas. Students will participate in a series of presentations. The presenters will come from other schools, industries, our faculty, and other students. The topics may be any aspect of the latest technologies or an approach that is interesting to students. Students can take up to two seminar courses. In this course, students will participate in activities that will develop their broad skills and knowledge, also they will have opportunities to explore a special topic in depth. CSE598 Computer Systems Engineering Internship (1-2 credits) This course is designed for students to gain practical experience from working in industry. Part-time CPT is 1 credit, together with concurrent 9 course credits, and full time CPT is 2 credits, together with 6 concurrent course credits. Each 1 credit of a practicum course requires at least 45 hours of practical experience related to the student's program curriculum. CSE599 Computer Systems Engineering Capstone (3 credits) This course is designed for students to gain hands-on experience on integrating the knowledge learned from the program including the core courses, and elective courses, and deliver a final project under the guidance of the course instructor. The final delivery project will vary depending on the trend of the computer industry, and the students' background. The scope of the course is determined by the instructor. CSE600 Python for AI (1.5 units) Python has been used in many technical fields, especially for AI programming. This course will teach the learner to the basics and some advanced features of the python programming and prepare students for the AI programming and big data applications. Students do not need prior programming experience to take this course. The class will cover the basic Python, including String, List, Set, Dictionary, Tuple, Concept of mutable and immutable, Sequence, Function, Control flow, File I/O, Module Class, and advanced Python, including Iterators and Generators, Decoration, Class in depth, NumPy, Pandas, etc. The examples and problems used in this course are drawn from diverse areas such as text processing and data processing, so that students will be able to use Python for various applications. CSE604 Machine Learning Fundamental (1.5 units) The Machine Learning course provides students with the ability to apply machine learning or predictive analytics methods. Machine learning models covered include classifiers, regression and unsupervised learning. Some more advanced topics, such as, deep learning models are introduced. In this course, you will learn how to apply machine learning to creating data driven solutions to business problems, query data sources for both training machine learning models and production models. You will also learn how to construct, evaluate, and cross-validate classification and regression models to predict value in production and how to construct unsupervised learning models to discover and understand structure in unlabeled data sets, develop and understand deep learning models and their relationship to other machine learning models. CSE606 AI Application with GAN (1.5 units) This course focuses on deep neural network learning with Generative Adversarial Network (GAN) and introduces some key concepts in deep neural learning. Training Deep learning networks requires a good understanding of the nature of gradient descent and its variant, and different forms of loss functions. GAN is a class of machine learning frameworks. Given a training set, GAN learns to generate new data with the same statistics as the training set. A GAN trained on photographs can generate new photographs that look at least superficially authentic to human observers. Though originally proposed as a form of generative model for unsupervised learning, GANs have also proven useful for semi-supervised learning, fully supervised learning, and reinforcement learning. The core idea of a GAN is based on the "indirect" training through the discriminator, which itself is also being updated dynamically. CSE608 AI Application with Reinforcement Learning (1.5 units) This course focuses on in-depth understanding of

deep learning applications and introduces some key concepts in reinforcement learning. Training Deep learning networks can be a challenging task and requires a good understanding of the nature of gradient descent and its variants. Students will learn about different forms of loss functions and hyper parameters and regularization in conv nets, RNNs and others. The focus then turns into reinforcement learning as an alternative to supervised learning. OpenAI Gym is introduced as a tool to simulate the agent's environment and interaction. We will use Keras as a key framework to model different neural network architectures. CSE610 Cloud Computing and Security (1.5 units) This course offers students an in-depth understanding and hands-on experience of cloud computing using AWS. It will cover a wide range of topics in Compute, Storage, Networking, Security, Monitoring and Logging, as well as Account and Cost Management. Topics include evolution of cloud computing, AWS global infrastructure, architectural principles, key services Page 56 of 65 and their common use cases, security and compliance model, pricing and account management. Students will do hands-on projects on setting up the AWS account and select needed resources. CSE612 AI Application in Computer Vision (1.5 units) The course covers the fundamental concepts in Computer Vision, including probability and mathematical theories, image processing, feature detection, structure from motion, face detection and recognition, etc. The course also introduces the deep learning tools such as PyTorch and TensorFlow with computer vision applications such as human pose estimation. Students will learn the fundamental concepts of computer vision theories and practical solutions. Students will also learn to use the OpenCV software for solving image processing and computer vision problems, and the PyTorch and TensorFlow tools for training deep learning neural network models to solve computer vision problems. CSE618 Algorithm in Python (1.5 units) This course is designed to teach efficient use of data structures and how to design an algorithm to solve a practical problem. Students will learn the logical relationships between the data structures associated with the real problems and their physical representations. Topics include algorithms and algorithm analysis, data organization and the applications. Practical use of the arrays, stacks, queues, single and double linked lists, trees, graphs, and heaps will be covered in depth. The class-based data models with object-oriented design patterns will also be introduced. CSE620 Deep Learning with PyTorch (1.5 units) This course will teach deep learning with a focus on its application in computer vision. Deep learning is a branch of machine learning which mainly uses the technology of neural networks. We will discuss the basics of computer vision, machine learning and venture into deep learning theories and applications. We will also learn a variety of machine learning and deep learning frameworks with PyTorch. The introduction to basic neural networks, convolutional neural networks and recurrent neural networks is combined with the development of real applications in the computer vision field. CSE622 Big Data Analytics with Apache Spark (1.5 units) Spark has increased the speed of analyzing applications significantly. Because of being versatile and easy to use, Spark is rapidly gaining market share. Spark makes it easier to solve complex data problems on a large scale. It is now the most active open source project in the big data community. This course introduces the use of Spark Core, SQL, Hadoop / HDFS / Hive (Needed for Spark) for practical applications, online demonstration, and enterprise application cases (such as housing price database). In this course, students will learn the command line syntax and examples of using commands through Spark, and Spark program tuning tips and writing application code in Python and Scala with Spark in the areas of SQL, streaming, machine learning and graph computing. Page 57 of 65 CSE624 Network Security (1.5 units) This course covers key security issues in computer communication networks. Among the issues to be discussed are: the security of LANs, WANs; threats to computer networks through exploitation of network infrastructure design weaknesses; security flaws in the network infrastructure protocols; security of content in computer network services; and risk assessment and security policies. Network intrusion detection and forensics technologies, cryptographic and authentication systems, capability and access control mechanisms are also discussed, including new developments in Internet routing and transport protocols, secure mail, directory, and multimedia multicast services. Current trends and research in security policies and technologies will also be discussed. CSE628 Machine Learning for NLP (1.5 units) This course introduces students to Big Data and NLP on Cloud. It provides an overview of Microsoft Azure Cloud Platform and

a deeper dive of the data processing and NLP capabilities. Through a combination of presentations, demos, and hand-on labs, students will learn how to design data processing systems, orchestrate end-to-end data pipelines, build scalable, accurate, and production-ready natural language models using cloud technologies. The latest NPL models, including GPT3, BURT, etc., will be covered in this course. CSE630 Data Engineering with SQL and NoSQL (1.5 units) This course will teach SQL and NoSQL databases with AWS and Apache Cassandra. The first part of the course will cover SQL languages and the second part will cover NoSQL. We will practice how to write complex SQL queries. Apache Cassandra is a free, distributed, wide column store. NoSQL database management systems are designed to handle large amounts of data across many commodity servers, providing high availability with no single point of failure. Cassandra supports clusters spanning multiple datacenters, with asynchronous masterless replication allowing low latency operations for all clients. We will have hands-on projects about the real applications. While Cassandra is a NoSQL database designed for massive data analytics, Cassandra offers a limited SQL interface called CQL, that does not have a join and windows function. We will integrate Spark SQL with Cassandra and run advanced SQL queries such as join, window function, and nested sub-queries. We will also work on PostgreSQL, an open source relational database for more advanced SQL queries that are designed to handle SQL coding challenges in many of the data science and data engineering job interviews. CSE632 Introduction to Cloud Computing (1.5 units) This course will provide students with an overview understanding of Cloud Computing's impact, the financials and an understanding of this technology, enabling students to gain both an overview of its uses and some hands-on experience with it. Page 58 of 65 This course is an introduction to Cloud Computing for students without programming. The students who have general experience working in tech or modern startups will find this course especially helpful to understand the technology. The main cloud providers like Azure, AWS, GCP will be covered, with simple hands-on practices. Network SDN/VDN, Network security, virtualization, containerization, serverless functions, software platform, infrastructure AS a service will be covered in the course. Students will do the hands-on exercises in the configuration of simple components in both Azure and AWS. CSE636 DevOps (1.5 units) DevOps is a set of practices that combines software development and IT operations. It aims to shorten the systems development life cycle and provide continuous delivery with high software quality. DevOps is complementary with Agile software development; several DevOps aspects came from Agile methodology. Software and the Internet have transformed the world and its industries, from shopping to entertainment to banking. Software no longer merely supports a business; rather it becomes an integral component of every part of a business. This course will teach students how to design, build, and deliver software using DevOps philosophy. One fundamental practice is to perform very frequent but small updates. This is how organizations innovate faster for their customers. Popular tools (like Jenkins, spinnaker) will be used for teaching. Other tools may be used as needed. CSE650 Digital Integrated Circuit Design using FPGA (1.5 units) Digital design using FPGAs is a very important activity in industries because the cost of an FPGA design is much lower than that of an ASIC design. Also, the time-to-market is much faster. To design a digital system using the FPGA, the designers should understand the architectures of the FPGA, as well the CAD tools that comes along with it. In this course, we will study in detail, the FPGAs architecture. Various digital blocks such as combinational logic, sequential logic, finite state machines, RAM, DSP, and a microprocessor are built by exploiting the architectures of the FPGAs. At the end of the course, the students can design systems and IP exploiting FPGA architecture using Verilog.

The current courses in July-August 2023 includes:
- UX/Product Design, Instructor: Prof. Xinyu Zhang,
- AI and Reinforcement Learning, Instructor: Prof. Yongchang Feng,
- Data Visualization, Instructor: Prof. George Jen,
- CSTUGPT, Instructor: Prof. Michael Hu,

- Python, Instructor: Prof. Glen Qin,
- Security and Risk Management, Instructor: Prof. Wickey Wang.

The available courses in September-October 2023 for registration includes:
- Financial Management, Instructor: Prof. James,
- Project Management, Instructor: Prof. An Lou/Wang,
- AI-Based Image Generation, Instructor: to be defined,
- SQL, Instructor: Prof. George,
- Prompt Engineering, Instructor: Prof. Shalini,
- Python, Instructor: Prof. Glen Qin.

(2) Master of Business Administration (MBA)
https://www.cstu.edu/pages/academic/programs/MBA.html?v=152d5605f2
(3) Emerging Technology Training Program (ETTP)
https://www.cstu.edu/pages/academic/programs/ET.html?v=160c93f733

ETTP covers core knowledge to Artificial Intelligence (AI), Big Data, Cloud Computing, Business Analytics, and other optional courses.

Length: 8 Month

Include: 4 Courses

Semester Units: 12

Prerequisites: Undergraduate Degree

What You'll Study: This program will teach the cutting-edge technology in Data Science and Artificial Intelligence. The courses include Statistics and Data Analysis, Business Analytics, Big Data, Machine Learning, Artificial Intelligence, Deep Learning, and Python, etc. These courses will provide a thorough training of the emerging technologies in recent years. Three courses and a capstone project are required to complete the training program. A certificate of the Emerge Technology will be issued upon the successful completion of the training program. This part covers artificial intelligence (AI) concepts and algorithms, such as searching, logic and reasoning, probability and reasoning, causality and reasoning, learning, and deep learning. We will cover AI applications in speech recognition, web search, face recognition, machine translation, autonomous driving, and automatic scheduling. These are all complex real-world problems, and the goal of artificial intelligence is to tackle these with rigorous mathematical tools to tackle new AI problems you might encounter in life.

Refer the following link for more information about the programs and courses at CSTU:
https://www.cstu.edu/pages/tmpl/Catalog.pdf
Refer the following link for academic policy at CSTU:

EMPLOYMENT OPPORTUNITY

CSTU distinguishes itself from traditional universities with a curriculum that is closely related to the job market. All professors at CSTU have extensive industrial experience, and CSTU's curriculum is updated every year according to the market trend. CSTU also partners with many companies to provide internships to enhance students' working experience. Benefiting from the practical curriculum, geographical advantages, and corporate partnership, the employment rate of CSTU graduates is far above the average of US universities. For career-minded students, CSTU is an ideal choice for you!