**Peter Hanping Chen**

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**Git Hub:** [**https://github.com/peterhchen**](about:blank)

**Summary:**

* Experience with Front-End React and Back-End Data Science for Web development.
* Hands-on experience with React.JS, HTML5, JavaScript, Python/R Data Science, Machine Learning, Tensorflow.
* Used Python to place data into JSON files for testing Django Websites
* Python Back-End Flask/Django: jQuery and axios/ajax request, response, and routing.
* PySpark/Machine Learning/Deep Learning TensorFlow 2.0/Python 3.8.2.
* AWS Management Console to launch and manage cloud resources.
* Integrated Python Applications with Amazon AWS using Boto3 library.
* Firm grasp on Cloud Security, leveraging Linux and Windows operating systems, using the AWS
* Configured AWS cloud infrastructure as code using terraform and continuous deployment through Jenkins.
* Used python and Django Framework to develop application.
* Hands on experience with SQL Databases PostgreSQL, MySQL, Microsoft SQL Server
* Python Collections, Multi-Threading and Multi-Processing.
* Added support for Amazon AWS S3 and RDS to host static/media files and the database into Amazon Cloud.
* Used PostgreSQL as database deployed on remote node deployed as docker service.
* I lived in Sunnyvale, CA and available for Phone/In-Person interview with 48 hours’ notice and can start immediately.

**Areas of Expertise**

* R/Python
* Scikit-learn/PySpark/Spark-UI/Databricks
* TensorFlow/PyTorch/Keras/Tensorboard
* Colab/GCP/AWS
* Machine Learning: NLP (Natural Language Processing), Recommender System, Reinforcement Learning
* ML Algorithm: K-Mean, KNN, Decision Tree, Random Forest, Gradient Descent, AdaBoost, Gradient Boost, SVM, XGBoost, CNN, RNN
* Tensorflow/Keras architecture: VGG16, MobileNet, ResNet
* Reinforcement Learning: Q-Table, Q-Leaning, DQN
* Deploy Tensorflow/Keras Model and HTML/JavaScript by Flask
* Tensorflow.js Library for Machine Learning for JavaScript
* Django/Flask/NodeJS/PHP
* HTML 5/CSS3/JavaScript/React/Angular/jQuery
* MongoDB/MySQL/OracleDB/Postgres
* PySpark/Kafka
* Linux Device Driver/Firmware/ C/C++
* Numerical Analysis/Data Modeling/Optimization
* Multi-Thread Programming

**Education**

EMBA, National Chiao-Tong University, Hsinchu, Taiwan (5/2011-8/2013), Phi-Tau-Phi award

PhDCS/EE, International Technological University, Santa Clara, CA (1/1995-7/2000)

Dissertation: http://qtec.wtc.net/POMind/PeterHChenCircuitDevicePaper20091002.pdf

Paper: https://www.semanticscholar.org/paper/Fixing-antenna-problem-by-dynamic-diode-dropping-Chen-Malkani/ce75dc8d162d8e709ab0b58816563098d9234b0e

MSCS/EE, USC (University of Southern California), Los Angeles, CA (1886-1987)

MSBME (Biomedical Engineering) and PhDBME Candidate, USC, Los Angeles, CA (1995-1986)

MSCS, NCU (National Central University), Taiwan (1979-1981)

BSCE, Tatung University, Taipei (1975-1979)

**Professional Experience**

**FUTUREWEI, SANTA CLARA, CA 6/21/2021 - present**

**Sr. Staff CPU Research Scientist, IC Lab**

* Developed DSE (Design Space Exploration) for CPU design exploration.
* Developer DSE Dataset by Gem5-Aladdin Simulator with Docker Image/Container communication with passing parameter and Volume, PyTorch, Run Manger, and cartesian product.
* Developed Hypermapper for multi-objective optimization (Input 10-20 features and output with maximum performance, and minimum area/power).
* Developed Tkinter GUI.
* Developed dataset processing with numpy and panda, and Scikit-Learn/PyTorch.
* Developed data viewer by Matplotlib and Seaborn

**SILICON VALLEY UNIVERSITY, SAN JOSE, CA 12/2019 - 6/2021**

**Adjunct Professor, CS Department**

* Developed courses (Data Science, Machine Learning, PyTorch Deep Learning, Tensorflow Deep Learning, Reinforcement Learning, Docker Programming) for Data Science Program.
* Train, Save/Load Model, Predict, Deploy Tensorflow/Keras Model and HTML/JavaScript by Flask.
* 4-G/5-G massive-MIMO networks, Antenna Data Model, Beamforming, Magnitude, Phase angle control by OpenAI, PyTorch, NVIDIA GPU/Cuda (C++).
* Face Count/Recognition: dLib/Dectectron2, face\_recognition library, self-driving object detection.
* Developed consumer-based features and applications using Python, Django, JSON, Reactjs and Test Driven Development (TDD).
* Class Registration System: React, Hooks, Redux, Django, MySQL, ApolloClient/graphQL.
* Interacted with tools using Python, Shell scripting (Bash) and Curl to automate some of the menial tasks for DevOps and Networking teams.
* Bootcamp Teacher: R/Python, MySQL/Postgre, Data Science, Machine Learning/Reinforcement Learning, and Deep Learning.
* Integrated Python Applications with Amazon AWS using Boto3.

**QUALCOMM, SAN DIEGO, CA 4/2015-12/2019**

**Full Stack Developer**

**Camera Performance:**

* Developed Camera chip performance simulation Model for maximum bandwidth and minimum latency time with Synopsys Static Timing analysis.
* Deployed Model by Flask server on AWS.
* Frontend GUI (HTML, CSS, ES6, React, AXIOS/AJAX API): Dashboard, Frequency Sweep, Simulation panel (Row/Column Multiple Selector/Filter by selcet2, breadcrumb Navigation, Hierarchical Chip Browser, d3, goJS, JsTree structure, localStorage (Cookie), and refresh all client pages. Utilized React’s Life Cycle Hooks.
* Developed tools using Python, Shell scripting, XML to automate some of the menial tasks. Interfacing with supervisors, artists, systems administrators.
* Backend: login authentication with LDAP, Excel/YAML file parsing, tree-like chip folder, YML/JSON conversion, JSON tree string.
* Developed natural language processing and text mining models using Python.
* Integrated and released to GitHub and Deployed target AWS/EC2 and EB (Elastic Beanstalk)/S3: Network Security, Configure Inbound Port, Celery, RabbitMQ, ssh, sftp, nginx, and gunicon3, Ubuntu Virtual Machine, Kubernetes, and Docker.
* Frontend: ReactJS component library for Paycheck, electronic signature, Spinner by ES6 (ECMA Script) with VS Code.
* Backend: Spring Framework/Rest API.
* Frontend: React and Grid Library for Quality Assurance/Failure Analysis/Axios API.
* Backend: PHP, MySQL/Oracle/TOAD Workbench, SQL, NumPy/MySQL/Oracle API, Authentication and Authorization (OAthur2 and LDAP).
* Flask/Django API/NumPy/MySQL API, Authentication and Authorization (OAthur2 and LDAP).
* Worked with data scientist for pattern classification of quality control data by TensorFlow.
* Defect classification based on features vectors (corners of process, voltage, and temperature) and text message of customer feedback.

**QA Verification:**

* Process customer text message feedback by NLTK and model with defect level with logistic regression.
* Defect Classification/correlation by different corners (process, temperature, and voltage) with TensorFlow 2.0/Python 3.7 and Django 2.0.
* Created authentication and authorization for QSSR (Qualcomm Splunk Server Request Registration) login for splunk log message processing and analysis by NLP/NLTK, classifier, and recommender system
* Qualcomm Quality Verification Dashboard
* Convert the Python Keras Model into NodeJS/Express with TensorFlow.js.
* Front end: Angular, Asynchronous concatenation and parallel, data structure sort by Date/time, State Machine, Chip Quality PKI, and ng Grid spreadsheet.
* Back end: Python/Keras/NodeJS/Express MongoDB, classified defect and failure by feature vector of processes and technologies.
* Technology Stack: Deploy MEAN Stack on AWS/EB.
* Model and correlate the process corners (voltage, temperature, and technologies) vs. timing with Lasso Linear Regression.

**SILICON VALLEY UNIVERSITY, SAN JOSE, CA 5/2013-3/2015**

**Software Developer, CS Department**

* Completed SVU web site (admission, Departments, faculty/students/library/transcript database) by JavaScript/React, php, xampp, MySQL/Oracle workbench, and My SQL by XAMPP. Web Hosted on AWS/EC2/XAMPP.
* SDN (Software Defined Networking): Developing/Implementing NDL (Network Description Language) parsing, Dijkstra path finding, Kruskal/Prim algorithm, integer Programming Optimization, Lagrangian Relaxation by Java 8 and Eclipse/Spring Boot.
* Fingerprint classification by CNN model classifier, TensorFlow, sklearn, matplotlib, and tkinter.
* Working environment: Linux/Ubuntu, Celery, RabbitMQ, Kafka, Spark, AWS, bitBucket.

**TATUNG COMPANY 7/2010-4/2013**

**Project Leader**

* Taiwan Power Company Project: Power surge data collection and prediction with Kafka and Spark.
* Consumer power usage behavior categorization by time/date, city, zip code, age, gender by Matlab and Octave.
* IoT (Intel Gateway Technologies) for home automation (for electric meter, refrigerator, Air condition) with Kafka, Spark, ZigBee, RabbitMQ, React, Bootstrap 3.1, HTML5, JavaScript, CSS3, jQuery, Google Web Toolkit (GWT), Tag Libraries, Custom Tags, Ajax and Node JS, Ext JS used for Responsive web design. Developed Security layer for authentication and authorization using OAuth server and OpenID APIs, Spring Boot, Spring MVC, and JUnit Framework with Eclipse/IntelliJ/STS.
* Lead team to complete development for the Synchronized Wireless Communication system (IEEE 802.11/IEEE 1588) and high-power amplifier for multiple-motors control by RTAI/Embedded-C and Java GUI.
* Integrated of Device Driver and CANOpen/EtherCAT for temperature and motor control.

**MENTOR GRAPHICS 1/2004 – 6/2010**

**EDA/C++ Programmer**

* Implemented algorithm for Mixed Signal fast-SPICE simulator, IPC by Socket Programming, and distributed computing (VNC, GRID, LSF) by Python/C++.
* Run-time controls the inventory/bonus of distributed EDA license with public/private cryptography.
* Build up strong knowledge in UML, IBM ClearCase (Global File Management), QA by Coverity/ Purify Code Coverage / Quantify Performance, HSpice/FineSim, OrCAD Capture/PSpice and Mentor Graphics ADMS/AFS/Eldo/EldoRF/Signal Integrity/Power Integrity/Thermal Analysis/EM.
* Check-in/out by IBM ClearCase and build product release test for monthly, quarterly, 6 months, annual QA.
* Integrated/Distributed Regression Testing by IBM/LSF, Oracle/Grid, VNC, k/t-shell, and Bash Script for daily and weekly QA, automatic Test by Python and PyQt, and bugs categorization.

**TERALOGIC, MOUNTAIN VIEW, CA 7/1996 – 12/2003**

**Python Programmer**

* HDTV Setup Box: Developed Java GUI by UIMX/UML for Setup Box, Mobile Surveillance system, Server: the MPEG-2 (H263) Video/Audio Digital Encoding system, UDP for emergency file transfer, TCP secure file transfer for setup box by WindRiver/VxWork, HTML, JavaScript GUI.
* Surveillance system: Face Recognition and categorization, TV-MPEG Coding/Decoding/Cryptograph, Control Video Frames Compressing/ Forwarding/ Backwinding/ Rewinding/ Indexing, and FTP for mobile system on Setup Box and Web Browser.
* Integrated Testing by XRunner/LoadRunner, Veritas, and QTP (Quick Test Professional). EDA Flow integration and Testing by Python.

**TEXAS INSTRUMENT, SUNNYVALE, CA 7/1987 – 7/1996**

**CAD Manager**

* Developed Placement and Routing algorithm for datapath design.
* Developed front-end/backend tools and technologies for Mixed Signal Design.

**USC, LOS ANGELES, CA 7/1985 – 7/1987**

**Research Assistant**

* Research on brain wave simulation with EEG and Volterra /Wiener kernel model.

**TATUNG UNIVERISTY, TAIWAN 7/1983 – 7/1985**

**Lecturer**

* Research on process simulation and process control.

**TAIWAN ARMY, TAIWAN 7/1981 – 7/1983**

**Second Lieutenant**

* Mandatory 2-years military service of Taiwan Army.

### Others

US citizen

Part time Instructor of CIS (Computer Information System) Department at Mission College (1997-2003): C/C++, Java Programming, Advanced Java Programming, Linux.

Adjunct Professor of CS (Computer Science) Department at SVU (Silicon Valley University) (1997-2003, 2015-present): MySQL/MongoDB, Data Science, Big Data/PySpark, Machin Learning, Deep Learning, ReactJS, Angular, GraphQL, Django, R, Linux, Java Programming, OS, Compiler Design

**Awards & Distinctions**

Well-known Antenna Effect patent and solution sold to Synopsys, Inc. in 1997.

Analog Characterization patents sold to Faraday Technology, Inc. in 2006.

Synopsys Best Papers Awards (5), 2000-2009

Phi-Tau-Phi Academic Award, for best NCTU/EMBA

Published Papers (20+), Institute of Electrical and Electronics Engineers and Industrial Conferences

US Patents (30+), Algorithms/Mathematical Modeling for device and power characterization (https://patents.justia.com/inventor/peter-h-chen)

### References

1. SVU:
   1. Jerry Shiao, President/Manager: 1(408)813-2888 (cell), [jshiao@svuca.edu, Jshiao88@gmail.com](about:blank)
   2. Simon Au, Dean/Supervisor, (408)799-4801, SAU@svuca.edu
2. Qualcomm:
   1. Aravind Lazarus, Supervisor: (937)768-9862 (cell), (858)658-2749 (office), alazarus@qti.qualcomm.com/arvind5003@gmail.com
   2. Vinay Thomas, Supervisor: (858)845-4574 (office), [vinayt@qti.qualcomm.com](about:blank)
   3. Rajiv Narayan, Manager: 1(858)663-4197 (cell), 1(858)845-3064 (office), marayan@qti.qualcomm.com
   4. Ragavendar Swamisai, Manager: (858)692-0383(cell), 1(858)845-6024 (office), [rswamisa@qti.qualcomm.com](about:blank)
   5. Zhao Du, Qualcomm UI Project Lead: (480)570-0580 (cell)
   6. Jianxin Fang, Qualcomm MongoDB Project Lead: (612)275-5273 (cell)
3. Tatung Company: LT Lee, Chairman of Board Trustee, 011 886 932 574 223 (cell), ltlee@ttu.edu.tw