Katherine Yih Ruey Chen 陳奕叡

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Performance Profile: Dedicated and driven engineer. Proven ability in identifying problems and implementing creative solutions. Eager learner who can integrate new skills and knowledge acquired into practice. Fluent in English and Mandarin.

Educational Background:

MS, Nanoengineering-University of California, San Diego (UCSD) June 2018
GPA: 3.63/4.00

BS, Chemical Engineering (Biomolecular Option)-University of California, Los Angeles (UCLA) June 2010
GPA: 3.23/4.00

Experience:

Taiwan Semiconductor Manufacturing Company (TSMC), Tainan, Taiwan

Process Engineer July 2021- September 2022

- Conceived modification to furnace tool resulting in trade secret
- Maintained inline/offline charts for film thickness and uniformity
- Performed new tool releases

Dr. Huan-Cheng Chang's Biophysical Chemistry Lab, Academia Sinica, Taipei, Taiwan

Research Assistant March 2020-June 2021

- Constructed and programmed electronic platform to adhere antibody onto nitrocellulose membrane
- Explored new FND (fluorescent nanodiamond)-antibody conjugation method to increase antibody-antigen binding efficiency for lateral flow assay
- Set up quality control and production pipeline for lateral flow assay kit

Intel Corp, Portland, USA

PTD Module & Integration Yield Engineer December 2018-November2019

- Improved yield by identifying possible sources of yield improvement via JMP and in-house programs
- Analyzed and reported verdict on tool/chamber qualifications for modules
- Narrowed down possible sources of defects via segmentation and understanding of process flow

Dr. David Fenning's Solar Energy Innovation Lab, UCSD, San Diego, USA

Graduate Researcher September 2017-August 2018

- Decreased chemical bath deposition (CBD) time of tin oxide thin film coating on FTO by 72% resulting in saving of time and energy cost
- Troubleshot and resolved repeatability of tin oxide thin film coating to 100%
- Presented additional ideas to improve tin oxide CBD for scale-up and cost decrease

Dr. Ying Chih Chang's Lab, Academia Sinica, Taipei, Taiwan March 2013-August 2016

Research Assistant

- Implemented several devices/methods that increased manufacturing efficiency of microfluidic chips by fourfold
- Programmed and built Arduino-based automation system for transferring released circulating tumor cells (CTCs) from microfluidic chip to membrane chip
- Created and maintained lab inventory system using Quartzy and other creative implementations
- Assisted to develop dendrimer-lipid based microfluidic chip for capturing CTCs
- Ran experiments and analyzed data of clinical samples from cancer patients

Bestgreening Biomedical Corporation, Taipei, Taiwan April 2011-August 2012

Researcher

- Collaborated with external website builder to create company website
- Communicated with ODM factories and discussed possible skincare product
- Researched and gathered information on skincare ingredients in current market
- Responsible for finalized quality check of product bottles and packaging

Computer Skills:

Javascript, HTML, CSS, JMP, C++, Solidworks, Excel, PowerPoint, Microsoft Word

Lab Skills:

SEM/EDS, PVD, glovebox, cyclic voltammetry, soft lithography, microfluidic manufacturing, profilometry, CO2 laser cutter, 3D-printing, oxygen plasma cleaner, UV ozone cleaner, PBC etching, soldering, Arduino, stepper motor programming, fluorescent microscopy, confocal microscopy, UV-Vis, AFM, rotary evaporator, lyophilisation, liposome processing, Nanodrop, QCM, Zetasizer, extruder, dialysis, IF staining, flow cytometry, homogenizer, gel filtration, cell culture

Activities/Organizations:

Entrepreneurial workshop series, UCSD Research Affairs

Participant April 2018-May 2018

- Participated in a 6-week seminar series on topics related to innovation and entrepreneurship

AIChE (American Institution of Chemical Engineer)-UCLA Chapter

Chem-E Car member September 2008-June 2010

- Cooperated with team to construct fuel versus distance traveled chart of built car

Language Abilities:

Fluent in English and Mandarin

Papers/Conferences/Presentations:

- Yeh, P. Y., Chen, Y. R., Wang, CF, and Chang, Y. C., 2018, "Promoting Multivalent Antibody-Antigen Interactions by Tethering Antibody Molecules on a PEGylated Dendrimer-Supported Lipid Bilayer", *Biomacromolecules*, 2018, 19 (2), pp 426–437.
- Yeh, P. Y., Chen, Y. R., and Chang, Y. C., A Biomimetic Microfluidics Promote Avidity Mediated by Dendrimer-Lipid Coating to Capture and Release Circulating Tumor Cells for Early Cancer Detection, 2015 Int. Symposium for Advanced Materials Research, presentation.
- Yeh, P. Y., Chen, Y. R., and Chang, Y. C., Enhanced Binding Efficiency of Cancer Cells in Microfluidic Chip by Multivalent Binding Brought About by Antibody Conjugated Dendrimer, the 5th Int. Conference on Optofluidics, 2015, presentation.
- Yeh, P. Y., Lin, F.M., Chen, Y. R. K., and Chang, Y. C., A Biomimetic Dendrimer-lipid Coating Microfluidics Promote Dynamic Clustering to Improve the Capture and Release of Circulating Breast Tumor Cells, 2016 Biomaterials International, poster.