徐培杰

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电气与电子工程师协会 学生会员

教育

重庆大学 重庆，中国
工学学士 *2017.09 ~ 2021.07（预期）*
电气工程及其自动化（主修）| 集成电路设计与集成系统 （辅修）

- **GPA：** 3.67/4.0（前 10%）； **WES iGPA：**3.80/4.0; **均分：** 88.18/100
- **荣誉&奖项：**全国大学生数学竞赛一等奖（*2018.09*），美国大学生数学建模竞赛 S 奖（*2019.04*）
  重庆大学大学生数学建模竞赛优胜奖（*2018.12*），重庆大学丙等奖学金（*2018.05*）

研究&项目

多智能体的控制策略与智慧家庭的能源管理研究 重庆
实习研究员 | 输配电装备及系统安全与新技术国家重点实验室 *2020.01 ~ 现今*

- 在未知热动力学模型时使用深度强化学习，设计并仿真算法最小化智慧家庭的能量消耗
- 对于风力涡轮机（WTs）与电池储能系统（BESSs）分布式系统，使用 MATLAB 设计和仿真一个一致性控制算法实现双馈感应发电机（DFIGs）的输出功率调节
- 实现了对于 10 个 WTs+BESSs 系统的分布式一致性控制

可见光通信的电气性能补偿技术研究 重庆
技术负责人 | 国创项目 *2019.03 ~ 2020.12*

- 基于 PCB 搭建可见光通信系统（VLC），包括数据发送和接受端的设计、研发和制造
- 从电力电子的角度，为 LED 驱动设计波形补偿策略并仿真
- VLC 系统的通信距离较上一代系统提高了 200%（点光源散射），起草 1 篇论文，完成 1 篇技术报告

数字示波器开发及实时信号处理 重庆
组长 | 电气工程综合设计实验 *2020.11 ~ 2020.12*
软件平台：Code Composer Studio 9 (CCS) | 代码量：1801 | 编程语言：C

- 使用 TMS320F28335 DSP 开发板和 LCD 实现数字示波器：使用 DSP 的 ADC 采样电压信号，利用 128 点 FFT 进行频谱分析，实现信号的同步上升沿、高低电平触发,实现了有限脉冲响应（FIR）滤波器
- 通过软件优化提高 LCD 刷新率 300%，底层数据延迟时间降低至原有 10%，课程得分 93/100

安卓应用开发 重庆
软件平台：Android Studio | 编程语言：Java *2020.09 ~ 2020.12*

- 独立开发 4 款 APP：Oral Calculation Tester (860 行)，Student Information Manager (990 行)，24 Game with Poker(1160 行)，Vocabulary Helper (1310 行)
- APP UI 设计，使用数据库（SQLite）开发学生信息管理系统，使用第三方 API 开发软件，课程得分 100/100

电机矢量控制分析系统设计与分析 重庆
软件平台：SIMULINK | 编程语言：MATLAB *2020.05 ~ 2020.07*

- 独立搭建异步电机间接转子磁链定向控制系统
- 以转速、定子电流和转子磁链为状态变量，建立了静止坐标系（$\alpha\beta$参考系）下的感应电机模型；基于上述模型，在 SIMULINK 中设计并仿真了电机控制系统，实现给定与输出无静差；根据给定的电机参数，分析并总结出 PID 参数的适用范围；课程得分 93/100

无刷直流电机（BLDC）系统设计与制作 重庆
组长 | 软件平台：CCS & Altium Designer | 编程语言：C *2020.03 ~ 2020.06*

- 设计并制作一个 BLDC 控制系统，包括电机驱动模块 PCB 制作和 DSP 控制系统编程；使用 PID 控制电机

实习

ABB 重庆
机器人应用实习生 | 软件平台：RobotStudio 2019 | 世界 500 强 *2020.07*

- 基于 IRB 14050 Yumi 设计了一种多功能机器人应用场景，提高排队速度 20%，同时阻碍病毒传播

技能&兴趣

英语：大学英语 6 级 579；托福 103/120

编程语言：C, Java, MATLAB, Verilog HDL, 汇编

精通的软件：Win Office, CCS, Altium Designer, SIMULINK, PSIM, Android Studio, Multisim

熟练的软件：RobotStudio, Cadence Virtuoso, Eclipse IDE

精通的微控制器：DSP, FPGA

兴趣：足球, 游泳, 长跑, 室内设计

Xu, Peijie

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Chongqing University, Chongqing, P.R. China
IEEE Student Member

EDUCATION

Chongqing University (CQU) **Chongqing, China**
Bachelor of Engineering *Sept. 2017 ~ Jun. 2021 (expected)*
Electrical Engineering and Automation (Major) | Integrated Circuits (Minor)

- **GPA:** 3.67 / 4.0; **WES iGPA**: 3.80 / 4.0; **Average Score:** 88.18 / 100

RESEARCH & TRAINING EXPERIENCE

Microgrid Laboratory (belongs to State Key Laboratory) **CQU**
Research Intern | Advisor: Prof. CHEN, Minyou *Jan. 2020 ~ Present*

- Investigated control methods for a Multi-Agent system and methods of energy management for a smart home
- Design and simulate an algorithm using Deep Reinforcement Learning to minimize energy cost for a smart home in the absence of the thermal dynamics model
- Designed and simulated an algorithm using MATLAB to implement consensus control for output power regulation of doubly fed induction generators (DFIGs) based wind turbines (WTs) with on-site battery energy storage systems (BESSs)
- Achieved distributed consensus for output power regulation of 10 DFIGs with BESSs

Electrical Compensation Technology for Visible Light Communication (VLC) **CQU**
Technical Leader | Advisor: Prof. LUO, Quanming *Mar. 2019 ~ Dec. 2020*
Funded by: National Science and Technology Innovation Training Program for College Students

- Investigated into the compensation technology for the electrical index deterioration of VLC
- Structured the VLC system; designed and made the data sending and receiving platform on Printed Circuit Boards (PCB); proposed and analyzed a waveform compensation method of a VLC driver; simulated the proposed method in PSIM
- Extended communication distance of VLC system whose LED worked as a scattering light source by 200%; wrote 1 design document of the VLC system; drafted 1 paper about proposed compensation method

Digital Oscilloscope Implementation and Real-Time Signal Processing **CQU**
Team Leader | Advisor: Prof. MAO, Yuxing *Nov. 2020 ~ Dec. 2020*
Software Platform: Code Composer Studio 9 (CCS) | Lines of Code: 1801 | Language: C

- Achieved an oscilloscope based on a TMS320F28335 DSP development kit and an LCD screen
- Sampled voltage of signal using the ADC in the DSP; analyzed frequency components of the signal using 128 points FFT; stabilized the waveform in rising edge, high level or low level mode; implemented a Finite Impulse Response (FIR) filter on the digital signal using circular convolution
- Speeded up refresh rate of the LCD by 300%; decreased delay time to 10% when transmitting data in the bottom layer software

Android Application Development **CQU**
Advisor: Prof. YANG, Ruilong *Sept. 2020 ~ Dec. 2020*
Software Platform: Android Studio | Language: Java

- Independently developed 4 APPs: Oral Calculation Tester (860 lines), Student Information Manager (990 lines), 24 Game with Poker(1160 lines), and Vocabulary Helper (1310 lines)
- Designed the user interface for APPs; developed management systems using database (SQLite) and third-party APIs

Motor Vector Control System Design and Analysis **CQU**
Advisor: Prof. WANG, Mingyu *May 2020 ~ Jun. 2020*

- Independently built an Indirect Rotor Flux Oriented control system for an induction motor (IM)
- Formulated a model of IM in a stationary reference frame ($\alpha\beta$ frame) by taking rotate speed, stator current and rotor flux as state variables; designed and simulated a motor control system in SIMULINK based on above model with no static difference between given and output; analyzed and concluded the suitable domain of parameters of PID according to the given IM

Brushless DC Motor (BLDC) Control System Design **CQU**
Team Leader *Mar. 2020 ~ Jul. 2020*
Software Platform: CCS & Altium Designer | Language: C

- Designed and made a BLDC system including a drive system on PCB and DSP control system.
- Designed the motor drive module and regulated motor speed with PID control.

Digital Clock Design **CQU**
Team leader | Advisor: Prof. XIONG, Lan *May. 2018*
Software Platform: Vivado 2017.4 | Lines of Code: 590 | Language: Verilog HDL

- Achieved a digital clock base on Xilinx Artix-7 FPGA (XC7A35T-1CSG324C)
- Structured, coded and debugged the source and constrain files for the FPGA development kit

INTERNSHIP EXPERIENCE

ABB **Chongqing, China**
Intern | Software Platform: RobotStudio 2019 *Jul. 2020*

- Designed a versatile robot application based on a collaborative robot (IRB 14050 Yumi) which expedited the speed of queuing by 20%, reduced direct human contact and prevented the transmission of the virus

HONORS & AWARDS

First Prize of Chinese Mathematics Competitions for College Students *Sept. 2018*
Successful Participant Prize of Mathematical Contest in Modeling *Apr. 2019*
Contest Paper: A Disaster Response System for Puerto Rico: Based on A Mathematical Model
Excellent Prize of Mathematical Contest in Modeling of Chongqing University *Dec. 2018*
Contest Paper: An Analysis of Terrorist Events in China and the United States
Third Prize of Mathematics Competitions of Chongqing University *Jul. 2018*
Third Class Chongqing University Scholarship *May 2018*

SKILLS & INTERESTS

Language: Native speaker of Mandarin, TOFEL (R/L/S/W: 30/28/23/22)
Programming Language: C, Java, MATLAB, Verilog HDL, Assembly Language
Mastered Software: CCS, Altium Designer, SIMULINK, PSIM, Android Studio, Multisim
Familiar Software: RobotStudio, Cadence Virtuoso
Mastered Micro-Controller: DSP, FPGA
Interests: Soccer, Swimming, Middle-distance running, Indoor arrangement