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HARRIS C. YONG

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SUMMARY

An electro-mechanical engineer with strong technical skills in controls, embedded algorithms and data analysis, complemented by extensive automotive experience ranging from design through testing to production.

PROFESSIONAL EXPERIENCE

BAE SYSTEMS, CALIFORNIA—Mobility: Hybrid Electric Propulsion Test & Integration 2008-2009

STAFF (SENIOR) MECHANICAL ENGINEER IN CONTROLS

- Coordinated and executed full propulsion system testing and design verification of a Future Combat Systems military vehicle's hybrid electric drive system on chassis dynamometers, leading to reliable operation.
- Integrated resources of multiple laboratories to create Hardware-in-the-Loop testing using real world terrain data to improve test validity while providing live feedback to engineers and customers.
- Analyzed CAN, Ethernet and high speed data to debug firmware and software logic while assisting cross-functional teams in advancing power electronic algorithms for motor, generator, battery and engine controls.
- Created MATLAB GUI's and provided feedback to improve LabVIEW-based and other data acquisition tools for streamlining testing and analysis procedures.

FORD MOTOR COMPANY, MICHIGAN: Chassis Brake Controls Engineering 2006-2008

ROLL STABILITY CONTROL ALGORITHM DEVELOPMENT ENGINEER

- Designed, coded and implemented a heuristic algorithm for road bank angle estimation to improve vehicle performance in aggressive dynamic maneuvers while reducing unintended control interventions for Roll Stability Control equipped vehicles, contributing to greater customer satisfaction.
- Devised and executed an in-depth experiment on the effect of springs, dampers and stabilizer bars on Roll Stability Control's estimation of vehicle body roll. Well received by management with results resulting in reduced development time of new products.
- Acquired and analyzed data on competitive electronic stability control systems' brake pressure gradients to improve prediction of vehicle control performance, leading to component "right-sizing" and reduced costs.
- Tuned, implemented and verified realtime embedded body roll angle estimation on Land Rover LR2, Ford Escape, Mercury Mariner, Ford Edge and Lincoln MKX for reliable and high-performance operation.

FORD MOTOR COMPANY, MICHIGAN: Chassis Engineering 2003-2006

Awarded highest "Outstanding" performance review ratings while contributing to multiple chassis engineering departments across vehicle programs and market segments within the context of the *Ford College Graduate Rotation Program*.

VEHICLE DYNAMICS DEVELOPMENT ENGINEER

- Championed the acquisition and analysis of ride quality data for the 2008 Focus at two testing grounds.
- Evaluated and quantified the reduction in vibration for a vehicle using Electric Power Assisted Steering and provided suggestions for a new data acquisition system.
- Assisted in damper tuning to meet ride targets.

BRAKE SYSTEMS INTEGRATION & LAUNCH ENGINEER

- Co-led the timely resolution of brake system issues during the launch of the new Ford Explorer and Mercury Mountaineer. Liaised between design and manufacturing engineers at 2 assembly plants.
- Co-recipient of the June 2005 Brake Technical Achievement Award.

SPECIAL VEHICLE TEAM (SVT) CHASSIS DESIGN AND VEHICLE DYNAMICS DEVELOPMENT ENGINEER

- Validated the packaging of wider rear tires to improve the handling performance of the Mustang Shelby GT500. Demonstrated robust tire/suspension/body clearances using CAD methods and through track testing for tires previously deemed unpackageable.
- Managed the design and release of the steering hydraulic distribution system, meeting design, quality, production and timing requirements for the Mustang Shelby GT500.
- Implemented first-at-Ford brake tube clip design for cost savings on high volume F-150 truck after extensive benchmarking and patent searches.
- Co-led the authoring of engineering robustness documentation (boundary diagram, interface matrix, DFMEA, reliability and robustness checklist)

CHASSIS SYSTEMS INTEGRATION ENGINEER

- Implemented new Six Sigma method of acquiring and determining dynamic wheel/suspension travel.
- Managed chassis updates for a build of 4 engineering Mustang prototype vehicles.
- Predicted and analyzed vehicle handling characteristics in conjunction with road load data by utilizing and simultaneously improving stabilizer bar analysis programs.

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PROFESSIONAL EXPERIENCE (CONT'D)

BMW & STANFORD UNIVERSITY, CALIFORNIA—Project Engineer & Team Administrator 2001-2002 INDUSTRY-SPONSORED TEAM DESIGN PROJECT

- Designed, prototyped and publicly demonstrated an elegant mechanical "Stepless Door Stop System" with improved packaging at a 70% cost reduction compared to the existing BMW mechanism. Design submitted for patent application.
- Received J. F. Lincoln Arc Welding Foundation award for distinguished documentation.

GENERAL MOTORS, MICHIGAN—Bumper/Fascia/Grille Design & Release Engineer 1999 INTERNSHIP

- Investigated product quality problems and determined root causes through coordination with suppliers, designers and assembly plant processes.
- Awarded scholarship for exemplary academic and internship performance.

GENERAL MOTORS, MICHIGAN—Field Test Engineer 1998 INTERNSHIP

- Managed a multi-vehicle fleet project analyzing customer usage severity. Analyzed differences between field failures and on-site failures to propose improvements for on-site testing. Directed installation of data acquisition equipment and acquired on-track test data.

EDUCATION

STANFORD UNIVERSITY—MS Mechanical Engineering, Specializing in Design.
GPA: 3.71/4.00

PRINCETON UNIVERSITY—BSE Mechanical Engineering. Certificate in Japanese Language & Culture.
GPA (overall): 3.85/4.00 (Summa Cum Laude). GPA (upper level classes): 4.12/4.00.
SIGMA XI (research), TAU BETA PI (scholarship & character), PHI BETA KAPPA (academic).

SKILLS

ENGINEERING Certified/qualified in:

- Six Sigma Greenbelt
- DVP&R (Design Verification Plan & Report)
- Experimental Design
- FMEA (Failure Mode & Effects Analysis)
- Joint Design for Threaded Fasteners
- Systems Engineering

COMPUTING ADAMS/Pre, C, CANalyzer/CANoe, CarSIM, DEWESoft, HTML, LabVIEW, MATLAB, Pro/ENGINEER, Simulink, SolidWorks, Working Model.
Microsoft: Word, Excel, PowerPoint, Outlook, FrontPage, Project.
Adobe: Illustrator, Photoshop, FrameMaker.

LANGUAGES Fluent in professional English. Competent in Chinese (Mandarin and Cantonese), French and Japanese for colloquial speech/reading/writing.

AUTOMOTIVE Certified by Ford Motor Company as a Tier 3 Advanced Test Driver.
Graduated from Skip Barber Racing School's Advanced Driving Course.
Licensed as an automobile driver, chauffeur and motorcycle rider.
Autocross racing participant with a custom analyzed/tuned suspension system.
Completed introductory auto mechanics course.
Princeton University Formula SAE team founder, manager and lead vehicle engineer.

ENGINEERING/ACADEMIC PROJECTS

Reports and presentations are available for download at http://www.SteerByThrottle.com under the Academia section.

VEHICLE DYNAMICS

- The High Performance, High Payload Driving School Car
- Simulating and Prototyping a Formula SAE Race Car Suspension System
- Design and Integration of Suspension, Brake and Steering Systems for a Formula SAE Race Car

AERODYNAMICS

- Lift and Drag Effects of a Rear Wing on a Passenger Vehicle

COMBUSTION

- Mean Effective Pressures and Fuel Consumption Characteristics of a Direct Fuel Injection Spark Ignition Two-Stroke Engine

CONTROL SYSTEMS

- Design and Implementation of a Pneumatic Active Suspension System

FLUID MECHANICS

- GUST: An Elegantly Revolutionary Quiet Leaf Blower