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|  | 🞂 **Shengnan Yu**Merz Court, CEAM, Newcastle University, Newcastle upon Tyne, NE1 7RU, UKTelephone: +44 (0) 789 276 0073, +44 (0) 191 222 5331Email: Shengnan.yu@ncl.ac.uk |

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|  | EDUCATION & QUALIFICATION* **Doctoral Candidate in Chemical Engineering 09/2007 – Present**

Newcastle University, Newcastle upon Tyne, UK* **M.S. in Process System Engineering, (Merit level) 10/2006 – 09/2007**

Cranfield University, Bedfordshire, UK* **M.S. in Environmental Chemical Engineering, (Merit level) 09/2004 – 08/2006**

Tianjin University, Tianjin, China* **B.S. in Chemical Engineering and Technology, (class 2:1) 09/2000 – 07/2004**

Tianjin University, Tianjin, China* **Certified Project Management associate, IPMP level D 06/2005**

International Project Management Association (IPMA), Tianjin, ChinaAWARDS* UK standard full PhD Studentship, Newcastle University, 2007 – 2010
* Award for Excellent Student Leadership, Tianjin University, 2005
* Best graduate in mathematics, (Score: 138/150), National Entrance Examination for Postgraduate (NEEP), 2004, China

RESEARCH EXPERIENCES* **PhD, the Systems Modeling and Analysis Group (SysMA), Chemical Engineering School**

**Newcastle University, 09/2007 – Present, Supervisor: Prof. Martin OBE and Prof. Montague*** **Dissertation Topic: Data Fusion for Chemical/Biochemical Process Tracking.**
* Near/Middle infrared spectroscopy (IR) is widely applied in the field of process statistical monitoring and control. In my dissertation, both near and middle infrared spectroscopy techniques have been utilized to collect online data from chemical and pharmaceutical processes, getting responses for about every 10 seconds, recorded along with other process control variables such as temperature, oxygen usage, etc. Recorded data has been analyzed aiming for a better process understanding, more accurate monitoring and precise control modeling.
* Data fusion (sensor fusion) statistical modeling is another major component in my dissertation. To monitor key outputs in chemical or biochemical processes, such as concentration, data fusion modeling embraces both physical and chemical information by combining the IR spectroscopy along with process control variables. A novel data fusion modeling methodology based on PLS is proposed, which addresses the best weighting balance of each variable for the first time. Applied on an industrial fermentation process and a FMCG cleaning process individually, the data fusion improved calibration model accuracy and facilitates greater understanding of process behavior.
* **M.Sc., Process System Engineering, School of Engineering**

**Cranfield University, 10/2006 – 09/2007, Supervisor: Prof. Ramshaw and Dr. Wang*** **Thesis Topic: Modeling and Simulation of Hydrocarbon Cracking.**
* The idea of “Turbo Cracker” is proposed as an innovative technology to replace the conventional hydrocarbon cracking furnace. Based on gas turbine model, turbo cracker offers superior key features, such as rapid heat addition or removal is achieved by adiabatic expansion/compression to rise the gas temperature. When applied in hydrocarbon cracking process, where ethylene selectivity relies on temperature, energy saving, coke deposition reduce and capital saving can also be achieved. As the feasibility analysis of turbo cracker, the simulation of a conventional hydrocarbon cracking furnace has been studied using HYSYS. Calculation model has been developed using reference data, which is capable of providing accurate predictions, including the trends for feedstock conversion, product distribution and heat flux consumed in the reactor.
* **M.Sc., Chemical Engineering, School of Chemical Engineering and Technology**

**Tianjin University, 09/2004 – 08/2006, Supervisor: Prof. Zhang*** **Thesis Topic: Process Simulation of Ester Distillation Unit in Aliphatic Alcohol Compounding Technology**
* **Detailed Description:** In the process of aliphatic acid methyl ester production of Wuxi Compounding & Chemistry Co. Ltd., aiming to improve separation efficiency, product quality and reduce power consumption, a stability simulation system on distillation process has been developed, which is capable of determining the optimal process control parameters based on the type of process that is being utilized. The developed simulation system is also capable of diagnosing the actual production process to suggest alterative optimization strategy based on the constraints in real time. For the first time, the stable model has been introduced, improved and solved by MALAB with triangle matrix and bubble point calculation based on established MESH equation. To solve non-ideal cases, such as lack of experimental data, modified UNIFAC methodology has been adopted to calculate the constant of the vapor-liquid equilibrium.
* **B.Sc., Chemical Engineering, School of Chemical Engineering and Technology**

**Tianjin University, 09/2000 – 07/2004, Supervisor: Prof. Song*** **Thesis Topic: The Research on the Preparation of Chlorpyrifos Microcapsulation by Interfacial Polymerization**
* **Detailed Description:** Chlorpyrifos, an organo-phosphorous insecticide, has been applied to control pests widely. To minimize the toxicity and reduce the odour of chlorpyrifos, an interfacial polymer layer consists of isocyanate and ethylene diamine has been introduced to the formation of micro-capsuled chlorpyrifos (10μm in diameter). Factors that affect the capsule formation, such as temperature, concentration of chlorpyrifos, and rotate speed, have been identified and investigated. Optimal recipe of formulating these microcapsules has also been achieved.

PUBLICATIONS* Yu, S., G. Montague, et al. "Data Fusion for Enhanced Fermentation Process Tracking." chemometrics and intelligent laboratory systems, to be submitted.
* Yu, S., G. Montague, et al. (2010). “Data Fusion for Enhanced Fermentation Process Tracking”, The 9th International Symposium on Dynamics and Control of Process Systems, Leuven, Belgium. 9: 37-42.
* Yu, S., E. Martin, et al. (2009). “Towards Improved Process Cleaning: the application of PAT in model based control”, International Federation of Automatic Control, Baltimore, Maryland, U.S.A.
* Yu, S., M. Han, et al. (2007). "Feasibility of Separating Isopropanol/Water Mixtures by PVA-PAN Composite Membrane." Chemical Industry and Engineering (Chinese) 24(4): 330-334.
* Yu, S. and J. Song (2007) "The Research on the Preparation of Chlorpyrifos Microcapsulation by Interfacial Polymerization." Chemical Industry and Engineering (Chinese), accepted.

TEACHING EXPERIENCES* **Teaching Assistant, School of Chemical Engineering and Advanced Materials**

**Newcastle University, 09/2007 – 12/2009*** CME2012 Statistics in Process Industries 1Supervisor: Prof. Martin OBE
* CME3020 Design of ExperimentsSupervisor: Prof. Martin OBE
* CME3021 Statistics in Process Industries 2Supervisor: Prof. Martin OBE
* CME8206 Design of Experiments & Multivariate Data Analysis Supervisor: Prof. Martin OBE
* **Teaching Assistant, School of Mechanical & System Engineering**

**Newcastle University, 09/2008 – 07/2009*** ENG2009 : Analytical and Statistical TechniquesSupervisor: Prof. Martin OBE

SKILLS & TRAINING* **Computer Programming Skills**
* MATLAB, HYSYS, PRO II, Minitab, SPSS, OPUS Environment
* **Participate Training Workshops**
* Process Characterization and Understanding, Newcastle University, May 09
* Introduction to Introduction to Teaching and Learning in Higher Education (ITLHE), Newcastle University, Oct. 08
* Mathematics for Data Modelling, EPSRC Winter School, Jan. 08

REFEREES**Prof. Gary Montague**, [Head of School of Chemical Engineering and Advanced Materials; Professor of Bioprocess Control]Newcastle University, Newcastle upon Tyne, NE1 7RUTel: +44 (0) 191 222 7265, Fax: +44 (0) 191 222 5292, Email: gary.montague@ncl.ac.uk**Jon Love**, [Director of IGDS in Process Automationm, Newcastle University; Principal Automation Consultant, BP]Newcastle University, Newcastle upon Tyne, NE1 7RUTel: +44 (0) 191 222 7241, Email: jon.love@ncl.ac.uk**Dr. Kui Zhang**, [Research Associate, Newcastle University, School of Chemical Engineering and Advanced Materials]Newcastle University, Newcastle upon Tyne, NE1 7RUTel: +44 (0) 191 222 7269, Email: kui.zhang@ncl.ac.uk |