

Ekarat Rattagan (เอกรรัตน์ รัตตะกาญจน์)



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EDUCATION

- 2010/01 – 2016/01 **Ph.D., Electrical Engineering and Computer Science International Graduate Program, National ChiaoTung University (NCTU), Taiwan**
- Research Areas: Embedded Systems, Machine learning, IoT
 - Thesis Title: **Offline and Semi-online Power Profiling for Smartphones Based on High-Level Component Utilization**, GPA: 4.09/4.30
- 2001/10 – 2003/09 **M.Sc., Information Technology, King Mongkut's University of Technology Thonburi (KMUTT), Thailand**
- Research Areas: Artificial Intelligence
 - Thesis Title: **Adaptive Genetic Programming for Inductive Learning (Adaptive GPIL)**, GPA: 3.66/4.0
- 1994/05 – 1999/03 **B.Arch, Architecture, Chulalongkorn University, Thailand**
- Research Areas: Sustainable architectural design
 - Thesis Title: **Design the Department of Architecture for Assumption University**, GPA: 2.68/4.0

WORK EXPERIENCE

- 2016/04 – present **Lecturer, Faculty of Information Technology, Thai-nichi Institute of Technology, Bangkok, Thailand**
- 2012/03 – 2012/12 **Part-time software engineer, Embedded Benchmarking Lab (EBL), Taiwan**
- Developing an AKL monitor
- 2007/04 – 2008/05 **Game developer, Novaleaf Software, Thailand**
- Developing games for Xbox 360 and PC
- 2005/11 – 2006/06 **Software engineer, Incotec-automation, Thailand**
- Developing VisualWare Framework
- 2003/07 – 2006/07 **Lecturer, Department of Information Science and Technology, Mahanakorn University of Technology, Thailand**

1999/06 – 2003/06 Architect, Planning division, Thammasat University, Thailand

- Strategic construction management (~ 700 Million baht budget)

PUBLICATIONS

- **Journal**
 - Ying-Dar Lin, **Ekarat Rattagan**, Yuan-Cheng Lai, Li-Pin Chang, Yun-Chien Yo, Cheng-Yuan Ho, and Shun-Lee Chang, "Calibrating Parameters and Formulas for Process-level Energy Consumption Profiling in Smartphones," *Journal of Network and Computer Applications*, Vol. 44, Sep. 2014.
- **Conference**
 - **Ekarat Rattagan**, Edward T.-H. Chu, Ying-Dar Lin, Yuan-Cheng Lai, "Semi-online Power Estimation for Smartphone Hardware Components", *SIES (10th IEEE International Symposium on Industrial Embedded Systems)*, Siegen, Germany, 8-10 June 2015.
- **Patent**
 - **Ekarat Rattagan**, Ying-Dar Lin, Yuan-Cheng Lai, Kate Ching-Ju Lin, "Symbolic Regression and Clustering for Power Consumption Estimation on Smartphone Hardware Subsystem," 以符號迴歸分群法量測手機應用之耗電", *Taiwan patent I512451*.

Ongoing work

- **Ekarat Rattagan**, Edward T.-H. Chu, Ying-Dar Lin, Yuan-Cheng Lai, "Semi-online Power Estimation for Smartphone Hardware Components", submitted to *Microprocessors and Microsystems (Elsevier)*.
- **Ekarat Rattagan**, Ying-Dar Lin, Yuan-Cheng Lai, Edward T.-H. Chu, Kate Ching-Ju Lin, "Symbolic Regression and Clustering for Power Consumption Estimation on Smartphone Hardware Subsystem", submitted to *IEEE Transactions on Sustainable Computing*.
- **Ekarat Rattagan**, Ying-Dar Lin, Yuan-Cheng Lai, "On Energy Productivity in Smartphones: Rescheduling Syncing Activities of Background Apps", submitted to *IEEE embedded systems letters*.

SERVICES

- Journal reviewer, Applied Computing and Informatics (Elsevier), 1/2015 ~ present.

AWARDS

- NCTU scholarship (2010 ~ 2013)
- Cacafly scholarship (2013 ~ 2014)
- Research scholarship

CERTIFICATE

- English language program, California State University, Los Angeles
- Basic Chinese (mandarin)

SKILLS

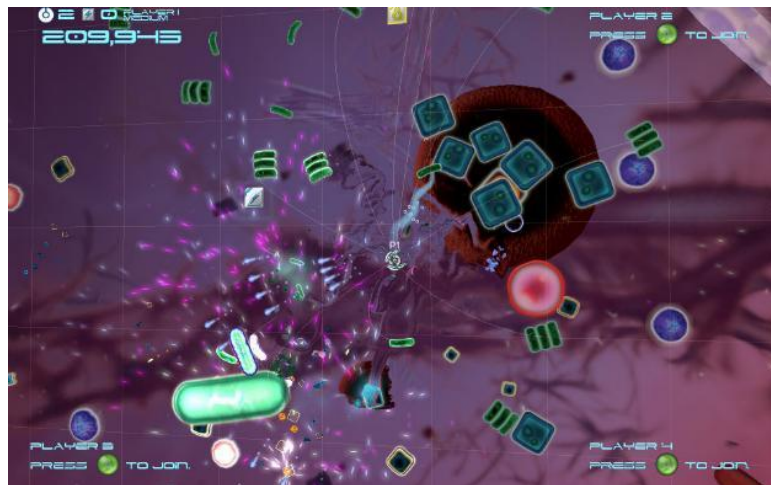
- **Programming language:** c, c++, java, python, R, etc.
- **Platform:** Android, Window, Linux, Arm
- **Language:** Thai (Native), English (Working experience), Mandarin (Basic)

PORTFOLIO

1. GAME

1.1 **Biology Battle** (Novaleaf, 2007/04/01 – 2008/05/31)

A 2D shooting game, implemented by C# and XNA, running on both Xbox 360 and PC. It was released on 2009 via XBLIG (Xbox Live Indie Games). For this game, I implemented collision detection, texture management, and UI system.



1.2 Jason Bomb (Novaleaf, 2007/04/01 – 2008/05/31)

A 2D puzzle and adventure game. I worked as a game play design and implementation.



1.3 Flash Game (Freelancer, 2009/01/01 – 2009/06/30)

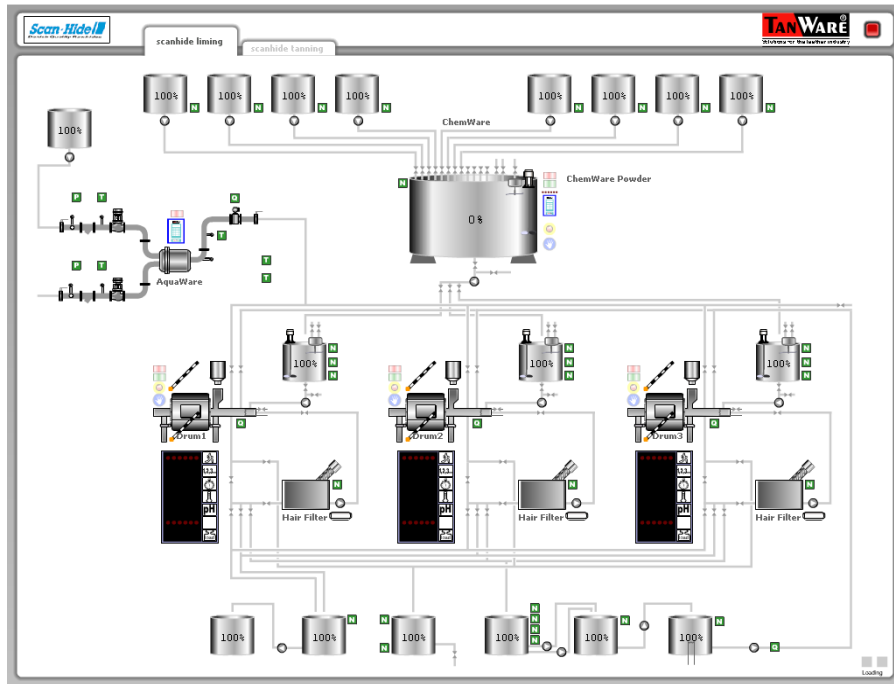
The online flash games implemented by Actionscript 3.0 (client) and Java (server). These game were created for Amway company for collecting the information of customers.



2. APPLICATION

2.1 Visual Ware Project (Incotec-automation, 2005/11/01 – 2006/06/30)

A real-time monitoring framework for the leather industries. It was implemented by using Actionscript 2.0 (client) and python (server) to exchange data between a web browser and embedded devices on the server side.




Example for Actionscript code



```
A base class for using in Visualware project.  
+  
* @author: Ekarat Pattagan  
* @date: December 27, 2005  
* @version |  
+  
*/  
  
import com.incotec.vw.controls.*;  
import util.*;  
  
class com.incotec.vw.cWItem extends MovieClip implements Cloneable, Subject  
{  
  
    private static var COUNTER:Number = 0;  
    private static var DEFAULTSTATE:String = "N/A";  
    private static var DEFAULTWIDTH:Number = 20;  
    private static var DEFAULTHEIGHT:Number = 20;  
    private var arr:Array;  
    private var state:String;
```


2.2 Energy Calculation. (Novaleaf, 2007/04/01 – 2008/05/31)

The prototype of the application estimating the cost of energy consumption of the Hewlett-Packard (HP) products.


Client Energy Calculator
Discover your energy savings potential

Select Language: United States - English powered by VERDIEM

Describe Your Usage



- corporation
- school
- government


8.33¢

average cost per kwh*

You can change this number.
It has been set to the national average, to change this rate, please enter your local rate.

Number of Units 100

HP dc7700 Ultra Slim Desktop



Power Supply: Standard power supply ⓘ

Processor: Intel® Pentium® D ⓘ

Monitor: 19 inch - Flat Panel ⓘ

Software: None ⓘ


Estimated Annual Energy Cost Per Unit* \$52.22 ⓘ

Total Annual Estimates* \$5,222.46 ⓘ

Carbon Footprint: 13793 lbs.

Equivalent Miles Driven: 81,134 miles

HP dc7700 Ultra Slim Desktop



Power Supply: Standard power supply ⓘ

Processor: Intel® Pentium® D ⓘ

Monitor: 19 inch - Flat Panel ⓘ

Software: Verdiem Surveyor ⓘ

Estimated Annual Energy Cost Per Unit* \$36.56 ⓘ

Total Annual Estimates* \$3,655.72 ⓘ

Carbon Footprint: 9655 lbs.

Equivalent Miles Driven: 56,794 miles

Energy Cost Savings/Benefits

Most
Energy Efficient

Estimated Annual Cost Savings Per Unit ⓘ : \$15.67

Total Estimated Cost Savings ⓘ : \$1,566.74

Carbon Footprint ⓘ : 4138 lbs.

Equivalent Miles ⓘ : 24,340 miles

OTHER PAST PROJECTS (Freelancer, 2003/07 – 2006/07)

- **Pattaya Traffic Management System**, Pattaya, Thailand.
 - Web Designer, Actionsript and PHP programmer
- **CIT System** (Revenue department of thailand)
 - J2EE Programmer: Tomcat , Websphere, Sql-Server
- **Kantana Knowledge Management System**
 - PHP Programmer