一、參加會議經過

大會議程安排如下

**June 8, 2005, Wednesday**

- 07:00 - 09:00  Registration
- 09:00 - 12:00  **Tutorial 3:** Fundamentals and applications of ant colony optimization - M. Dorigo

  **Tutorial 4:** Fundamentals and applications of particle swarm optimization - J. Kennedy and R.C. Eberhart

- 12:00 - 02:00  Lunch
- 02:00 - 05:00  **Tutorial 1:** Analyzing swarms: a stochastic systems approach to studying swarm behavior - K. Lerman and T. Hogg

  **Tutorial 2:** Cultural algorithms: a computational framework for studying social evolution - R.G. Reynolds

- 06:00 - 09:00  Registration
- 07:00 - 09:00  Reception

**June 9 2005, Thursday**
07:00 - 08:00  Registration

08:00 - 08:30  Welcome and Opening Remarks - P. Arabshahi and A. Martinoli

08:30 - 09:20  Keynote Speech 1: The honey bee foraging behavior syndrome: quantifying the response threshold model of division of labor - T. Pankiw

09:20 - 10:00  Session 1: Swarm Intelligence Foundations and Biological Systems Modeling

Chair: K. Lerman

1.  Bio-inspired emergent construction - D. Feltell, L. Bai, and R. Soar

2.  Designing collective behavior in a group of humans using a real-time polling system and interactive evolution - D. Buchsbaum, P. Funes, J. Budynek, H. Koppermann, and E. Bonabeau

10:00 - 10:30  Break

10:30 - 12:30  Session 2: Particle Swarm Optimization and Ant Colony Optimization

Chair: G.K. Venayagamoorthy

1.  A proposal to use stripes to maintain diversity in a multi-objective particle swarm optimizer - M.A. Villalobos-Arias, G. Toscano-Pulido, and C.A. Coello Coello

2.  Understanding particle swarm optimization by evolving problem landscapes - W.B. Langdon, R. Poli, O. Holland, and T. Krink

3.  Why does it need velocity? - J. Kennedy

4.  Particle swarm optimization with area of influence: increasing the effectiveness of the swarm - K.J. Binkley and M. Hagiwara

5.  Unified particle swarm optimization for tackling operations research problems - K.E. Parsopoulos and M.N. Vrahatis

6.  An ant colony system approach for solving the at-least version of the generalized minimum spanning tree problem - A.K. Das, P. Arabshahi, and A. Gray

12:30 - 02:00  Lunch, Poster and Demo Session

2. Distributed sensor placement with sequential particle swarm optimization - P. N. Ngatchou, W.L.J. Fox, and M.A. El-Sharkawi


4. Improving the performance of particle swarm optimization using adaptive critics designs - S. Doctor and G.K. Venayagamoorthy

5. Niching ability of basic particle swarm optimization algorithms - A.P. Engelbrecht, B.S. Masiye, and G. Pampara

6. Principal component particle swarm Optimization (PCPSO) - M.S. Voss

7. Shape matching using fuzzy discrete particle swarm optimization - J. Du, D. Huang, J. Zhang, and X. Wang


9. Artificial life and online flows optimization in energy networks - M. Annunziato, M. Lucchetti, G. Orsini, and S. Pizzuti


11. Cognitive swarms for rapid detection of objects and associations in visual imagery - Y. Owechko and S. Medasani


13. Resource allocation for a distributed sensor network - M.C. Martin, I. Trifonov, E. Bonabeau, and Paolo Gaudiano


16. The effect of environmental structure on the utility of communication in hive-based swarms - P. Schermerhorn and M. Scheutz

02:00 - 04:00 Session 3: Particle Swarm Optimization and Ant Colony Optimization Applications

Chair: E. Sahin
1. Novel composition test functions for numerical global optimization - J.J. Liang, P.N. Suganthan, and K. Deb

2. Swarm intelligence for routing in mobile ad-hoc networks - G. Di Caro, F. Ducatelle, and L.M. Gambardella

3. Detection of multiple source locations using a glowworm metaphor with applications to collective robotics - K.N. Krishnanand and D. Ghose

4. Particle swarm optimization for unsupervised robotic learning - J. Pugh, Y. Zhang, and A. Martinoli

5. A Hybrid particle swarm/Ant colony algorithm for the classification of hierarchical biological data - N. Holden and A.A. Freitas

6. The Particle swarm over scene matching - O. Sjahputera and J. M. Keller

04:00 - 04:30 Break

04:30 - 06:30 Session 4a: Particle Swarm Optimization

Chair: J. Kennedy

1. Fitness inheritance in multi-objective particle swarm optimization - M. Reyes-Sierra and C.A. Coello Coello

2. Dynamic multi-swarm particle swarm optimizer - J.J. Liang and P.N. Suganthan

3. CiClops: computational intelligence collaborative laboratory of pantological software - E. S. Peer, A. P. Engelbrecht, G. Pampara, and B. S. Masiye

4. Information exchange in multiple cooperating swarms - M. El-Abd and M. Kamel

5. Neural networks based non-uniform scalar quantizer design with particle swarm optimization - W. Zha and G.K. Venayagamoorthy


04:30 - 06:30 Session 4b: Particle Swarm Optimization Applications

Chair: J.M. Keller

1. Comparison of particle swarm optimizations for optimal operational planning of energy plants - S. Kitagawa and Y. Fukuyama

2. Parameter tuning of a computed-torque controller for a 5 degree of freedom robot arm using co-evolutionary particle swarm optimization - A. Asmara, R. A. Krohling, and F. Hoffmann

4. DNA motif detection using particle swarm optimization and expectation-maximization - C.T. Hardin and E.C. Rouchka


07:00 - 08:00 Reception

08:00 - 10:00 Banquet

June 10 2005, Friday

08:30 - 09:20 Keynote Speech 2: Swarm-bot: an experiment in swarm robotics - M. Dorigo

09:20 - 10:00 Session 5: Swarm Intelligence Foundations and Artificial Systems Modeling

Chair: R. Menezes

1. Modeling and mathematical analysis of swarms of microscopic robots - A. Galstyan, T. Hogg, and K. Lerman

2. Swarm robotics for a dynamic cleaning problem - Y. Altshuler, I.A. Wagner, and A.M. Bruckstein

10:00 - 10:30 Break

10:30 - 12:30 Session 6: Swarm Robotics I

Chair: A. Winfield


2. MASCARILLONS: flying swarm intelligence for architectural research - J. Nembrini, N. Reeves, E. Poncet, A. Martinoli, and A. Winfield


4. Emergent collective decisions in a swarm of robots - V. Trianni and M. Dorigo

5. Swarms for chemical plume tracing - D. Zarzhitsky, D. F. Spears, and W.M. Spears

6. The utility of heterogeneous swarms of simple UAVs with limited sensory capacity in detection and tracking tasks - M. Scheutz, P. Schermerhorn, and P. Bauer
12:30 - 02:00  Lunch, Poster and Demo Session

Same as June 9.

02:00 - 03:40  Session 7: Swarm-Intelligent Systems and Algorithms I

Chair: E. Bonabeau

1. Swarm approach for a connectivity problem in wireless networks - R. Montemanni and L.M. Gambardella


3. Physical deployment of digital hormones through RFID technology - M. Mamei and F. Zambonelli

4. On delay-dependent stability of a swarm of networked autonomous vehicles under communication constraints - D. Garagic

5. Swarm Reasoning - D. Palmer, M. Kirschenbaum, J. Shifflet, and L. Seiter

03:40 - 04:00  Break

04:00 - 05:40  Session 8a: Swarm Robotics II

Chair: O. Holland


2. Generating contour plots using multiple sensor platforms - F. Zhang and N. Leonard

3. Evolving behaviors for a swarm of unmanned air vehicles - P. Gaudiano, E. Bonabeau, and B. Shargel

4. Probabilistic aggregation strategies in swarm robotic systems - O. Soysal and E. Sahin

5. Evolving aggregation behaviors for swarm robotic systems: a systematic case study - E. Bahceci and E. Sahin

04:00 - 05:40  Session 8b: Swarm-Intelligent Systems and Algorithms II

Chair: P. Flikkema

1. The wisdom of the hive applied to mobile ad-hoc networks - H. Wedde and M. Farooq

2. Threshold-based algorithms for power-aware load balancing in sensor networks - C.M. Ciani, V. Trifa, and A. Martinoli
3. Ant inspired server population management in a service based computing environment - M.D. Peysakhov and W. C. Regli


5. Using aggregate motion in multi-agent teams to solve search and transport problems - A. Rodriguez and J.A. Reggia

05:40 - 06:00 Break

06:00 - 07:00 Plenary discussion with the Industrial Research Panel

Chair: P. Arabshahi

Panelists: Eric Bonabeau (Icosystem Inc., Boston, USA), Rodney Goodman (InfinID Technologies Inc., Pasadena, USA), Joe Rothermich (Natural Selection Inc., La Jolla, USA), Enzo Lucibello (AntOptima, Lugano, Switzerland), Hobson Lane, (Northrop Grumman Inc., Redondo Beach, USA)

其中，學生的論文口頭報告時間是被安排在 6/9 下午 4 點 30 分至 6 點 30 分的時段。其餘的時間，則是聆聽大會所安排的幾位知名的講者或是投稿論文的學者介紹或發表自己的研究。而議程中的論文海報討論時段是安排在午間與午休時間，所以除了在飯桌上，也可以在會場中討論論文的內容交換心得。

二、與會心得

見識到許多大師級的學者以及許多優秀傑出的論文，拓展了學生的國際觀與價值觀。學術之路無垠無涯，若非能走出去觀察其他人所做努力與成就，不見會讓自己陷入井底之蛙的滿足。許多傑出的研究，也在無形中觸動了自己的靈感，對於往後的論文研究，有明顯的助益。

三、建議

大會的議程包含論文 poster 討論，但所安排之場地於演講場地四週，而且過於狹小，以致不能使多人能夠同時參與討論，若能將其攤置於走廊，則將使其議程更為順利。

四、攜回資料名稱及內容

- 2005 IEEE Swarm Intelligence Symposium Proceeding
  ◆ 大會刊物光碟
- Routine Human-Competitive Machine Intelligence
  ◆ Human-Competitive automatic programming 介紹 DVD 影片
- The swarm-BOTs Project
  - Swarm Bots 機器人發展計畫與功能介紹
- IEEE World Congress on Computational Intelligence Call for paper
  - WCCI2006 論文徵稿簡介
- Fifth International Workshop on Ant colony Optimization and Swarm intelligence Call for paper
  - ANTS 2006 論文徵稿簡介

五、其他