

***„Szlifowanie diamentów”***

***czyli***

***o edukacji wybitnie zdolnej***

***młodzieży***

**Jan Madey**

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**Uniwersytet Warszawski**

**11 października 2010**

# *Preambuła*

# 10-lecie WWSI

**10**

**16**

# 10-lecie WWSI

- 10 — podstawa systemu dziesiętnego
- Ale jaki system jest najważniejszy w informatyce? Oczywiście:

**binarny**

16 ☺

2

2

2

# Lizbona, wrzesień 2010

- EUCYS  
<http://ec.europa.eu/research/youngscientists/>
- Konkurs prac Młodych Naukowców Unii Europejskiej
  - 22 lata
  - **16** lat Polska
- Jesteśmy więc w UE znacznie dłużej niż formalnie!

# Lizbona, c.d.

- Trzy pierwsze, trzy drugie i trzy trzecie nagrody
- I nagroda, Łukasz Sokołowski: „W jaki sposób żerują mrówki *Formica cinerea*”
- II nagroda, Justyna Słowiak: „Bioróżnorodność, paleoekologia i pozycja taksonomiczna kręgowców środkowotriasowego systemu morskiego Śląska”

RYWANIA  
N  
TS  
en.gov.pl  
RODOWE





**1. SUMMARY**


**2. INTRODUCTION**

2.1. ABOUT *Ponera opacis*




**2.2. BASIC FORAGING STRATEGIES**

- individual foraging
- foraging with recruitment
- mass recruitment
- group recruitment



**3. MATERIALS AND METHODS**

3.1. EXPERIMENTS ON THE WILD COLONIES



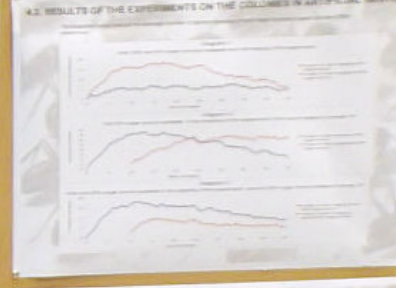
3.2. EXPERIMENTS ON THE COLONIES IN ARTIFICIAL NESTS

3.3. EXPERIMENTS ON THE COLONIES IN ARTIFICIAL NESTS



**4. RESULTS**

4.1. RESULTS OF THE EXPERIMENTS ON THE WILD COLONIES

**5. DISCUSSION**

Text discussing the findings of the experiments and their implications for understanding ant foraging behavior.

**6. BIBLIOGRAPHY**






### *Neohercynia of mirabilis* Münster, 1831

Range and occurrence: Middle Miocene of Africa, Asia (China, Israel, Russia), Europe (Midland, Germany, Poland, Switzerland, Italy)

**Morphology:** Three rounded vertebrae - white, small, without spinous, back and lower of this vertebrae are convex. Two dorsal vertebrae - pink, longer than rounded vertebrae, elongated with tubercles at the anterior and also partially on the posterior. The central vertebrae - big part conical in each. However, it differs from the more rounded above thanks to a different structure. It was curved and it has flattened ends of the vertebrae.

**Description:** These animals were most likely amphibious, because they had a streamlined shape, however their little feet and long tail. Most likely they had a web between their fingers, which facilitated swimming. It is commonly believed that sauropods gave vent ahead to lay eggs. However, work of Chiny et al. (2016) indicates they could have been oviparous. The things that favor the possibility of giving birth to living young, is an elongated tail as a pelvic accommodation (Fig. 17) and discovery of oviducts in several parts of sauropods' body (Fig. 17). There are evidence that pelvic females indeed gave birth to living young (if being so, all, 2016). Triassic sauropods had an elongated neck and head. They were with robust lateral processes. Because of their larger size (about 3 meters in length, Fig. 17) these animals could have not only fish, but also other smaller vertebrates. Furthermore, there is also possibility of contribution in order to increase the chances of survival of an ovum offspring, just as in many other prehistoric reptiles (2016).



### *Neohercynia sp.*

Range and occurrence: Middle Miocene of Africa, Asia (China, Israel, Russia), Europe (Midland, Germany, Poland, Switzerland, Italy)

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### *of Symmetrus sp.*

Range and occurrence: Middle Triassic of Germany, Austria and Poland

**Morphology:** Slightly elongated, with half rounded corpus and with rounded ends. Dark brown bone, with half rounded corpus and with rounded ends. Dorsal part. Corpus covered in joint place with pointed part and all structures were more water-dependent.

**Description:** Symmetrus is one of the first specimens to give rise to the most peculiar of marine reptiles group - Plesiosauroidea (Fig. 18). In between these two specimens, however it was the first specimen to give rise to the most peculiar of marine reptiles group - Plesiosauroidea (Fig. 18). In between these two specimens, however it was the first specimen to give rise to the most peculiar of marine reptiles group - Plesiosauroidea (Fig. 18).

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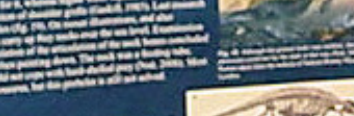
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### Discussion on taxonomical labels of the gathered

Discussion on taxonomical labels of the gathered

### Conclusion

Conclusion



### Acknowledgements

Acknowledgements

### References

References

# Amsterdam, wrzesień 2000

## (cofamy się o 10 lat)



- **Grzegorz Niedzwiedzki (20)**  
School: Technikum Geologiczne im. Stanisława Staszica  
Hobbies: paleontological research, geological research, rock-climbing  
Career intention: paleobiologist, geologist  
**New finds of dinosaur tracks in the Holy Cross Mountains**



# *Od zwycięstwa do zwycięstwa*

# Konkursy, konkursy, ...

- Międzynarodowa Olimpiada Informatyczna (IOI)
- ACM International Collegiate Programming Contest (ACM ICPC)
- TopCoder Open
- Google Code Jam
- Microsoft's Imagine Cup

# ACM ICPC – zasady

- Drużyna trzyosobowa
  - Wolno startować 2 razy w Finałach
  - Z konkretnej uczelni może być tylko jedna drużyna
- Jeden komputer!
- Zadania (około 10) w postaci opowiadki
- Środowisko narzucone (wcześniej znane)
- 5 godzin, ranking, balony

*2003*

**...the RESULTS are in from Beverly Hills!!**

**The 2003 World Champions: Warsaw University!**



From 3,850 teams selected from 1,329 universities in 68 countries competing at 106 sites and preliminary contests worldwide, seventy teams of students are competing for bragging rights and prizes at The 27th Annual ACM International Collegiate Programming Contest World Finals sponsored by IBM to be held on March 25, 2003, in Beverly Hills, California.



# Certificate of Achievement



awarded to

**Warsaw University**

**Tomasz Czajka**

**Andrzej Gasienica-Samek**

**Krzysztof Onak**

**Jan Madey & Krzysztof Diks, Coaches**



**acm** International Collegiate  
Programming Contest

**IBM**

event  
sponsor

## World Champions

from among seventy teams chosen from a field of 2,873 teams  
from 1,329 universities in 68 countries competing at 100 sites

The 27th ACM International Collegiate

## World Finals 2003

Beverly Hills, California

25 March 2003

A handwritten signature in black ink, reading 'William B. Poucher'.

William B. Poucher, Ph.D.  
ACM Programming Contest Director

***2004***

## WIRED LIFE AND THE CHAMPION CODERS ARE...

**IN SOFTWARE**, no country is hotter than India. But at the Apr. 16 **TopCoder Collegiate Challenge**, software's world championship in Boston, the programming powerhouse was all but invisible. A 22-year-old Pole, Tomasz Czajka, won the \$25,000 prize for the second year in a row, edging out rivals from the U.S., Canada, and Australia.

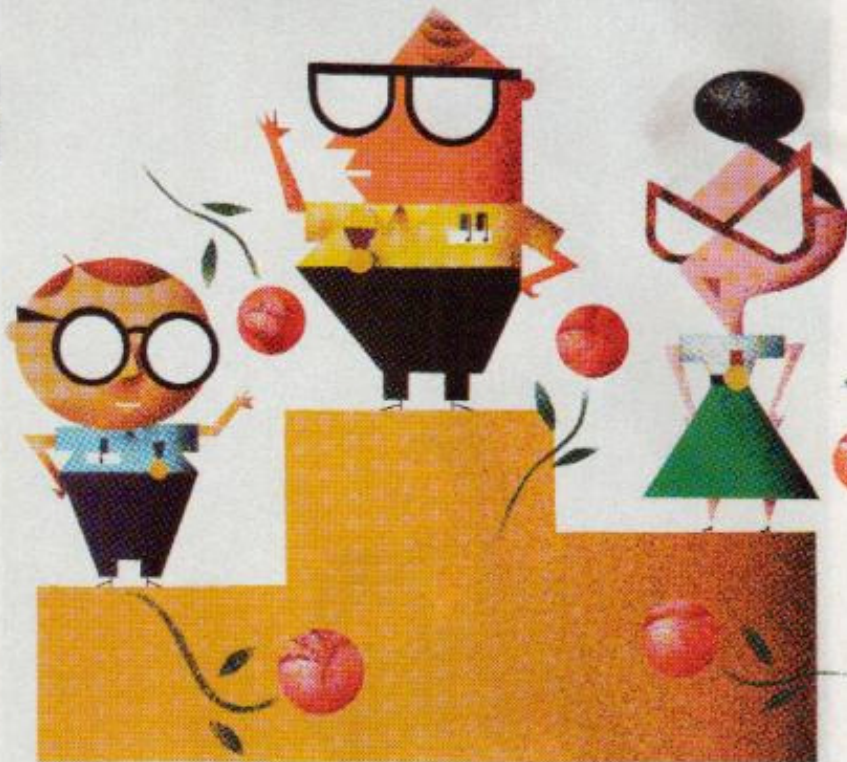
Indians barely ranked as also-rans: 58 Indian students were among 705 competitors in the early rounds, but none made it into the 24-person programming final.

The country consistently trails. Officials at TopCoder, the Glastonbury (Conn.) company that runs the contests, have ranked competition results of 36,000

programmers over three years. **University of Warsaw** ranks highest, with its students in the 97th percentile. **Massachusetts Institute of Technology** students finish, on average, in the 86th. **Indian Institute of Technology** is far behind, in the 56th percentile. TopCoder officials say the contests reflect pure math skills. But G. Sivakumar, head of computer science at IIT Bombay, says students

need training for the contests because they're races against the clock. He says the Chinese already provide courses, and that India will likely follow.

Companies such as **Yahoo!** and **Intel** sponsor the contest and use it as a recruiting tool. While India is sure to keep landing its share of software jobs, look for recruiters to keep banging on doors in places such as Boston and Warsaw, too. —Stephen Baker



## **WIRED LIFE AND THE CHAMPION CODERS ARE ...**

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*Stephen Baker Business Week, 10-th May 2004 year*

*2005*

*MOUNTAIN VIEW, Calif. – Sept. 23, 2005* – Google Inc. today announced **Marek Cygan, a student at Warsaw University**, as the grand prize winner of the 2005 Google Code Jam, Google’s annual computer programming competition. Cygan competed against 14,500 registrants from around the world, more than double the number of competitors from years past, to bring home the \$10,000 grand prize.

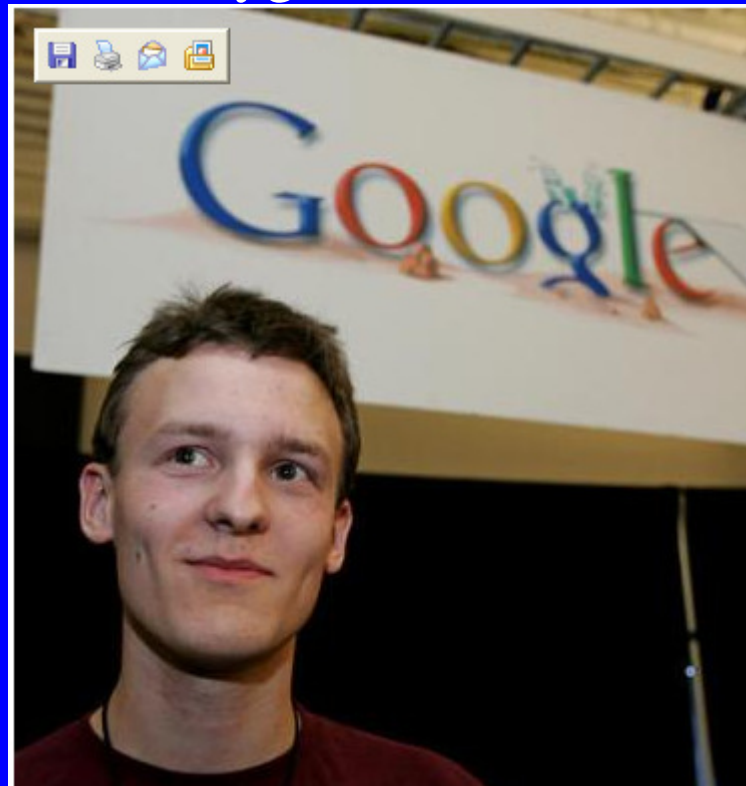
“It’s an honor to host the most talented computer programmers in the world,” said Alan Eustace, vice president, Engineering and Research, Google Inc. [...] This is the third year of the Google Code Jam, which is produced in conjunction with TopCoder, the leader in online programming competition, skills assessment and competitive software development. [...]

# Google Code Jam

Tomek Czajka – 2003, 4<sup>th</sup> place

Tomek Czajka – 2004, 4<sup>th</sup> place

Marek Cygan – 2005, winner



# Business Week

DECEMBER 12, 2005 **INTERNATIONAL COVER STORY**

## Rise Of A Powerhouse

**How the young knowledge workers of Central Europe are pushing the region to a new level**

They came from around the world, young men with handles like SnapDragon and Bladerunner attacking computing problems so complex that even experienced coders could only stare at the screen in bewilderment. **Only one mastered the final algorithm problem: Eryk Kopczynski, a.k.a. Eryx, a reticent Warsaw University student** who wears his long hair in a ponytail and says his life's ambition is to "discover some interesting notion."

Kopczynski's triumph in this year's TopCoder Open, sponsored by Sun Microsystems, was no fluke. He was following in the footsteps of a slew of computing geniuses to emerge from the monolithic Soviet style buildings of Warsaw U. "Poles like to compete," says Warsaw U computer science student Marek Cygan, winner of this year's Google Code Jam. No kidding. **Warsaw University is ranked No. 1 in the world in top coder events, ahead of the likes of Massachusetts Institute of Technology.** [...].



# TopCoder Open Winners

Tomek Czajka – 2003, 2004

Eryk Kopczyński – 2005



***2006***

*Wall St. Journal*  
**PORTALS**  
By **LEE GOMES**

*Cause for Concern?*

*Americans Are Scarce In Top Tech Contest*  
*May 10, 2006; WSJ, Page B1*

The results have been carefully tabulated by a computer and, thus, are beyond dispute: Of the 48 best computer programmers in the world, only four of them are Americans. But what that bit of data says about the state of the U.S. education system is open to debate. [...] By contrast, there were eight from Russia, and four each from Norway and China. **The biggest delegation -- 11 -- came from Poland.**

***2007***

**...the RESULTS are in from Tokyo!!**

**The 2007 World Champions: Warsaw University!**



From 6,099 teams selected from 1,756 universities in 82 countries competing at 205 sites and hundreds more competing at preliminary contests worldwide, eighty-eight teams of students competed for bragging rights and prizes at The 31st Annual ACM International Collegiate Programming Contest World Finals sponsored by IBM on March 15, 2007, and hosted by ACM Japan Chapter and IBM Tokyo Research Lab.

...the **RESULTS** are in from Tokyo!!

The 2007 World Champions: Warsaw University!

The image shows a screenshot of the results table for the 2007 ACM International Collegiate Programming Contest World Finals. The table lists the top teams, their scores, and the number of solved problems. A large text overlay in the center of the table reads "World Champions! Warsaw University Gold Medal".

Rank	Team Name	Solved	Penalty
1	Warsaw University	8	1405
2	Tsinghua University	7	1200
3	St. Petersburg University of IT, Mechanics and Optics	6	866
4	Massachusetts Institute of Technology	6	866
5	Novosibirsk State University	6	868
6	Saratov State University	6	957
7	Twente University	6	1011
8	Shanghai Jiao Tong University	6	1026

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## Top Coder Member Count: 123,658 - September 27, 2007

Rank	Name	Member Count	Rating	
<b>1</b>	<b>Warsaw University</b>	<b>71</b>	<b>2617.79</b>	<b>(1 miejsce od <u>9 lutego 2005</u> do <u>10 września 2009</u>)</b>
2	Moscow State University	46	2440.47	
3	TsingHua University	44	2315.44	
4	St. Petersburg SU	22	2285.72	
5	SPbSU ITMO	22	2208.20	
6	University of Waterloo	40	2142.14	
<b>7</b>	<b>University of Wroclaw</b>	<b>40</b>	<b>2067.35</b>	
8	FER Zagreb	17	2061.14	
9	University of Tokyo	29	2034.66	
10	Kiev National University	30	2005.42	
11	Ural State University	12	2003.23	
12	ZheJiang University	134	1978.40	
13	Saratov State University	40	1968.75	
14	KTH – Royal Institute of Tech	10	1963.04	
15	Comenius University	28	1950.98	
<b>16</b>	<b>MIT</b>	<b>15</b>	<b>1930.56</b>	
<b>17</b>	<b>Jagiellonian University</b>	<b>24</b>	<b>1876.42</b>	

*2008*



# 2008 TopCoder Open

- *Algorithm Competition*
- 72 finalistów
- 21 państw
- Powyżej 5 uczestników
  - Ukraina: 6
  - Chiny: 9
  - Rosja: 13
  - Polska: 17 (w tym UW: 10!)

# TCO2008 – wyniki (16 maja)

- *Algorithm Competition*
  - Końcowa runda (10)
    - 3 osoby z Rosji
    - 2 osoby z Polski
    - 1 osoba z Australii, Chin, Indonezji, Szwecji i Ukrainy
  - **Champion: Tomek Czajka** (absolwent UW)
  - Trzecie miejsce: **Eryk Kopczyński** (UW)
- *Marathon Competition*
  - **Champion: Przemek Dębiak** (UW)

*2009*

# ACM ICPC

- Finały 2008/2009 w Sztokholmie, kwiecień
  - Uniwersytet Warszawski: *brązowy medal*
- Akademickie Mistrzostwa Polski w Programowaniu Zespołowym (AMPPZ), październik
  - Uniwersytet Warszawski: *I, II i III miejsce*
- Akademickie Mistrzostwa Europy Środkowej w Programowaniu Zespołowym (CEPC), listopad:
  - Uniwersytet Warszawski: *I, IV i V miejsce*
- *Po raz 16-ty z rzędu drużyna Uniwersytetu Warszawskiego awansuje do Finałów, luty 2010, Harbin, Chiny*

***2010***

# ACM ICPC

- Harbin, 1-6 lutego 2010
- 103 drużyny wyłonione na jesieni
  - 21648 studentów, z 1931 uczelni z 82 krajów
- 11 zadań
- 10 drużyn *nie zrobiło żadnego zadania*
- Dwie drużyny rozwiązało 7 zadań, 11 drużyn rozwiązało 6 zadań — medaliści
  - 4 złote, 5 srebrnych, 4 brązowe









2010 World Finals Harbin  
Zhejiang University

IBM

Zhejiang U  
2010 World Finals  
Harbin

Zhejiang  
2010 World Finals  
Harbin

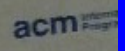
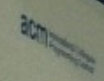
94 2010 V Un of warsaw

77 2010 World Finals Harbin University of British Columbia





Silver  
University of Warsaw







2010 HARBIN

SPONSORED BY IBM ACST

ICPC WORLD FINALS

94 University of Warsaw  
2010 World Finals Harbin

*Skąd te sukcesy?*

# Bardzo proste!

- Mamy w Polsce wspaniałą i bardzo zdolną młodzież
  - Mało się o tym mówi!
- Istnieją różne formy pomocy utalentowanym
  - Mało się o tym mówi!
  - *Krajowy Fundusz na rzecz Dzieci*
- Odnosimy światowe sukcesy już na poziomie szkolnym
  - Mało się o tym mówi!
  - Młodzi Naukowcy Unii Europejskiej
  - Olimpiady międzynarodowe
- Przyciągamy na UW najlepszych młodych ludzi!

# Filip Wolski

## the Winner of IOI 2006





# Tomek Kulczyński the Winner of IOI 2007



# Wydział Matematyki, Informatyki i Mechaniki UW

- Corocznie przychodzi do nas około 30 olimpijczyków
  - Informatyka
  - Informatyka z matematyką
- Staramy się dobrze nauczać ☺
  - W szczególności, jak się samemu dokształcać!
- Wspomagamy dobre konkursy i zawody
  - Obozy naukowe (też dla olimpijczyków, przygotowywane przez studentów)
  - Treningi na Wydziale
  - Dedykowane zajęcia z algorytmiki praktycznej (doktoranci)

# Wydział MIM, c.d.

- Oferujemy różnorodne zajęcia do wyboru
  - Praktyczne (metody, narzędzia, języki programowania)
  - Wykłady fakultatywne i monograficzne (w tym roku: 55)
- Wspomagamy różne formy aktywności naukowej i zawodowej studentów
  - Udział w projektach badawczych
  - Udział w projektach informatycznych (USOS!)
  - Współpraca z firmami owocująca tematami prac dyplomowych
- Zapraszamy wybitnych naukowców z zagranicy do prowadzenia otwartych wykładów
- Staramy się (z sukcesem) wytworzyć miłą atmosferę



# Partnerzy

- **Krajowy Fundusz na rzecz Dzieci**
  - Program pomocy wybitnie zdolnym uczniom od ponad ćwierć wieku
  - Organizator polskiej edycji EUCYS od **16** lat
  - Spośród funduszowców rekrutuje się
    - Większość laureatów europejskich EUCYS
    - Większość laureatów olimpiad krajowych i zagranicznych
    - Większość informatyków odnoszących sukcesy
    - Wybitni muzycy i artyści (por. np. Konkurs Chopinowski)

# Partnerzy, c.d.

- **ATM** już od szeregu lat (od 2003 roku!)
  - Sponsorowanie wyjazdów na wszystkie trzy poziomy zawodów (AMPPZ, CEPC, Finały ICPC)
    - Możliwość aklimatyzacji!
  - Całoroczne stypendia naukowe dla kilku najlepszych studentów informatyki na UW, **bez żadnych warunków**
    - Możliwość koncentracji na studiach i pracy naukowej
- Przykład mądrej polityki, mającej znaczący wpływ na pozostawanie zdolnych informatyków w Polsce

# ACM ICPC World Finals 2012

# WARSAWA

***Dziękuję za uwagę!***