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European Girls' Olympiad in Informatics

Executive Summary

Swiss Olympiad in Informatics

The Swiss Olympiad in Informatics is a programming competition for high school students. The participants learn about many topics in algorithmics during the numerous workshops and camps. In different rounds of the competition they can show what they have learned. The best students can then represent Switzerland at the International Olympiad in Informatics and many other international events. The Olympiad can promote interest in the subject and can show the participants career and study prospects. The Swiss Olympiad in Informatics (https://soi.ch) is one of the nine Science Olympiads in Switzerland (https://science.olympiad.ch).

What is the European Girls' Olympiad in Informatics?

The European Girls' Olympiad in Informatics (EGOI) is a new international competition for young women interested in Computer Science, lasting for one week. The Olympiad comprises of two contest days where the participants solve challenging algorithmic problems. The program is rounded off with excursions. The students will have time to socialise with other girls interested in Computer Science and to explore the host country. Each participating country may send a delegation consisting of four female participants under the age of 20, accompanied by two coaches.

The program of EGOI is similar to the one of well-established competitions such as IOI (International Olympiad in Informatics) or CEOI (Central European Olympiad in Informatics). Compared to these, the participation is only open for women.

Why is an EGOI necessary?

In Switzerland, far less women than men decide to study or work in the field of Computer Sciences. This gender gap is even more pronounced in the Mathematical Olympiad and the Olympiad in Informatics (science competitions for young students). The percentage of women at the Swiss Olympiad in Informatics is below 10% (2018/2019). In other countries, we can see similar numbers. At the International Olympiad in Informatics 2018, the representatives of 88 countries discussed how the gender gap could be tackled. Different participating countries reported about their experiences in their respective countries. The situation is comparable in most of them.

In 2012, the Mathematical Olympiad initiated EGMO (European Girls' Mathematical Olympiad). Starting with 19 participating countries, this number rose to more than 50 in 2019, indicating the success of EGMO.

The goal of the Swiss Olympiad in Informatics is to initiate a similar competition in Informatics - the European Girls' Olympiad in Informatics. The first edition will be held in June 2021 in Switzerland. EGOI will be hosted by a different member country each year. This ensures a sustainable and long-term impact of the project. There are already two countries which have shown interest to host EGOI in 2022 and 2023.

Starting at the beginning of 2019, we talked with many European countries to gauge the interest in the matter. Many of them would be interested in sending a delegation to EGOI. In the summer of 2019, we were able to present the project at IOI and at CEOI and we received very positive feedback.

Why is a gender-separated event necessary?

The goal of EGOI is to provide a platform for young women to enjoy and deepen their interest in Computer Science. We focus on the following aspects:

1. **Encouragement to participate**
   The stereotype of Computer Science being something only for men persists. Many young women do not even consider a participation, even though they would have talent and would enjoy it. This is where our competition comes in: girls who may not have the courage to participate at an Olympiad in Informatics feel included and directly addressed. This allows them to find the self-confidence to participate.

2. **Sensitise teachers**
   By raising awareness among teachers, they can explicitly encourage young women to participate.

3. **Create female role models**
   The participants get to know other female Computer Scientists and can find female role models for themselves. This is important, as most attachment figures are male (e.g. teachers, professors, Computer Science stars).

4. **Strengthen self-confidence and acceptance**
   One goal is for women in Computer Science to utilise their full potential. To achieve this, one needs a sense of achievement, self-confidence, and acceptance.

We hope to promote these aspects with our project. We want to highlight the great achievements that young women are capable of. Exciting tasks that cater to their interests (e.g. research and science, travel or health and medicine - as a survey among Swiss participants of Science-Olympiads in 2017/18 showed) will stimulate thinking and help strengthen their joy in algorithms.

The Science Olympiad created in 2019 a gender guideline supported by the Swiss National Fonds. Among its recommendations on how to reduce barriers for women in the Olympiads an event like EGOI was deemed helpful for the advancement of young women in Computer Sciences (inspiring role models; appealing learning content; encouraging interactions; enriching learning processes).

Aside from the benefits for the participants, EGOI is an opportunity to increase awareness of the public about women in Computer Sciences. Ideally this is achieved with a campaign in cooperation with representatives from the industry. Switzerland as the first host can be a pioneer in gender equality and promote itself as a leader in industry, education and innovation.

Organisation

The planning and implementation of EGOI is mostly carried out by volunteers. An organising committee from the Swiss Olympiad in Informatics leads the planning of EGOI. During the event itself, they are supported by many volunteers of the Science Olympiads as well as university students.

EGOI will be realised together with the Computer Science department of ETH Zurich, which can provide, among other things, computer labs for the exams and rooms for ceremonies.

Reference Projects

In the last few years Switzerland successfully organised several international Science Olympiads. With our active cooperation with the other Science Olympiads and inclusion of experts we are able to profit from their valuable experience.

International Biology Olympiad IBO 2013, Universität Bern	ibo2013.org
International Physics Olympiad IPhO 2016, Universität Zürich	ipho2016.org
European Girls' Mathematical Olympiad EGMO 2017, Uni & ETH Zürich	egmo2017.org

Schedule

	Participants	**Leaders**
Day 1	Arrival	Arrival
Day 2	Opening Ceremony Practice Session	Opening Ceremony Practice Session Translations
Day 3	Contest 1	General Assembly Contest Observation
Day 4	Excursion	Excursion Translations
Day 5	Contest 2	General Assembly Contest Observations
Day 6	Excursion Closing Ceremony with Medal Ceremony	Excursion Closing Ceremony
Day 7	Departure	Departure

The contests will be similar to the ones at the well-established Olympiads in Informatics (IOI, CEOI). On each of the two contest days, the participants have 5 hours to solve 3-4 algorithmic problems. They write computer programs which will then be graded by an automatic grading system. The contestants immediately get feedback on how well their solution performed and how many points they scored.

The excursions are intended to provide a change away from the competitive part of the schedule. On these trips, the participants can see what Switzerland has to offer. Furthermore, the social program allows the participants to get to know each other and exchange ideas - the Science Olympiads not only see themselves as competitions, but they also put great emphasis on the exchange between young people across language and cultural boundaries.

Cost Estimate

The estimated cost is based on experience from previous international Science Olympiads held in Switzerland.

Assumptions:

- Duration: 7 days, 6 overnight stays
- Teams: 24 delegations x 6 people = 144 people
- 68 aides (28 guides, 20 runners, 10 organisers, 10 scientific staff)
- Total 212 people

For Science Olympiads it is common that the host covers all costs for accommodation and food and this leads to large expenses. The Swiss Olympiad in Informatics was able to profit from this arrangement in the last 20 years as we participated in many international competitions. Switzerland can give something back to the international community by organising EGOI. To allow as many countries as possible to participate, we will not charge a participation fee in the first year.

The event is almost completely organised by volunteers. If we were to pay these volunteers a modest hourly rate of 25 Swiss francs, we would have to increase the budget by around 150’000 CHF. Furthermore, generous partners provide us with the needed infrastructure, knowledge and financial resources.

Revenue

	CHF
Swiss Olympiad in Informatics	30’000
Computer Science Department ETH Zurich	50’000
Fundraising	190’000
Total	270’000

Expenses

	CHF
Accommodation (1272 nights x 60 CHF)	76’320
Meals (2544 meals x 25 CHF)	63’600
Excursions (212 people x 100 CHF*)	21’200
Useful Goodies/Medals (144 people x 100 CHF**)	14’400
Exams (infrastructure, scientific staff)	15’000
Ceremonies (rooms, technology, moderation, show acts)	20’000
Public relations (public appearance, media work, photo/film)	15’000
Operating costs (preparation, security, administration)	20’000
Reserve	24’480
Total	270’000

* Sample excursion: Day trip to Rigi. Afternoon trip Lake Zurich.
** Examples for goodies: T-Shirt, water bottle, backpack

Contact Person

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Organising Committee

Stefanie Zbinden

Stefanie Zbinden is the head of the organising committee of the European Girls' Olympiad in Informatics. Alongside her studies in Mathematics at ETH Zurich she works as a teaching assistant for calculus and helps organising the Swiss Olympiad in Informatics. With her four participations at EGMO 2013 - 2016 she has first hand experience of what such an event can do to support and motivate young women.

In the past few years she participated in numerous international programming competitions and was able to achieve remarkable successes. Among others a silver medal at the International Olympiad in Informatics 2016, a participation at ACM ICPC World Finals and first place at Google Code Jam for Women 2019.

Benjamin Schmid

Benjamin Schmid is among other things responsible for fundraising at EGOI. He studies Computer Science at ETH Zurich. During his studies he did several internships, thought Computer Science at a high school and is currently working as a teaching assistant for the course Algorithms Lab.

He won a bronze medal at the International Olympiad in Informatics 2014 and is now an organiser for the Swiss Olympiad in Informatics. He was the head organiser for several camps. Since 2016 he is Vice President of the organisation.

Cédric Neukom

Cédric Neukom is responsible for the technical committee of EGOI and the collaboration with ETH Zurich. Alongside his Computer Science studies at ETH Zurich he works as a project manager and web developer for a web agency in Zurich. He already worked as a freelancer in web development during high school and was able to gather valuable experience in project handling. He participated at the International Olympiad in Informatics in 2013.

Further Members of the Organising Committee

André Ryser
Student and staff at University of Fribourg
Participant IOI 2012

Barbara Roos
Ph.D. Student Physics University of Wien
Participant EGMO 2014

Charlotte Knierim
Ph.D. Student Computer Science ETH Zurich

Ivana Klasovita
Student Computer Science ETH Zurich
Participant EGMO 2016 & 2017

Matteo Signer
Student Computer Science ETH Zurich

Michal Švagerka
Software Engineer
Task author for several competitions

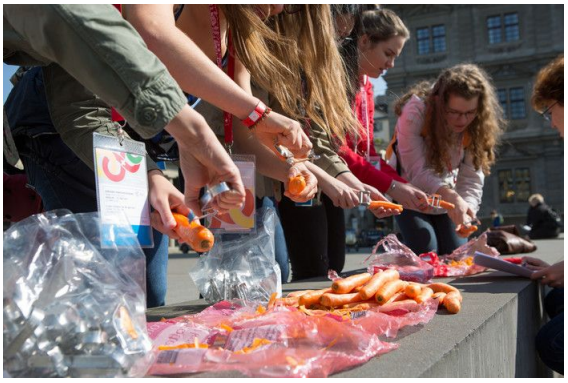
Dr. Monika Steinová
Software Engineer
Task author for several IOIs, Head of Scientific Committee CEOI 2018

Viera Klasovita
Student Mathematics ETH Zurich
Participant EGMO 2015, 2016 & 2017

Impressions

Participants of the Girls Camp 2018 of the Swiss Olympiad in Informatics.

Exam at the International Olympiad in Informatics 2019 in Azerbaijan



Participants of EGMO 2017 in Zurich discover the city.

The winners of EGMO 2017.