# Registration form

Name:
Affiliation:
Address:
E-mail:
Phone:

Supervisor (for students):

## Registration rates

Regular:

| | |
|---|---|
| early (until April 14, 2022) | ILS 480 |
| late (after April 14, 2022) | ILS 530 |

Student (full-time graduate students only):

| | |
|---|---|
| early (until April 14, 2022) | ILS 250 |
| late (after April 14, 2022) | ILS 300 |

## Method of payment

Wire transfer, bank requisites:

– beneficiary: איגוד ישראלי לבקרה אוטומטית

– bank: Leumi (10)

– branch: 882

– account: 43952575

Charge to institutional account

On-site payment (cash or checks only)

Filled registration forms are to be e-mailed to

mira.aran.iaac@gmail.com

with a proof of transfer, if applicable

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# טופס הרשמה

שם:
מקום עבודה:
כתובת:
דוא״ל:
טלפון:

מנחה (עבור סטודנטים):

## דמי הרשמה

רישום מלא:

| | |
|---|---|
| מוקדם (עד 14 באפריל 2022) | ‏480 ₪ |
| מאוחר (לאחר 14 באפריל 2022) | ‏530 ₪ |

רישום סטודנט (סטו' לתארים מתקדמים בזמן מלא בלבד):

| | |
|---|---|
| מוקדם (עד 14 באפריל 2022) | ‏250 ₪ |
| מאוחר (לאחר 14 באפריל 2022) | ‏300 ₪ |

## אמצעי תשלום

העברה בנקאית, פרטי הבנק:

– מוטב: איגוד ישראלי לבקרה אוטומטית

– בנק: לאומי (10)

– סניף: 882

– חשבון: 43952575

לחיוב תקציב מוסדי שמספרו

תשלום במקום (המחאה או מזומן בלבד)

את הטופס יש לשלוח לכתובת הדוא״ל

mira.aran.iaac@gmail.com

עם אישור העברה, אם רלוונטי

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Invitation to IAAC workshop on

# Navigation Systems and Applications

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# INWE22

to be held in **Daniel Hotel**, Herzliya
on Monday, April 25, 2022 (Nisan 24, 5782)

Organizers: **Héctor Rotstein** (RAFAEL)
**Vadim Indelman** (Technion)
**Itzik Klein** (U Haifa)

# Foreword                                        פתח דבר

The Israel Navigation Systems and Applications Workshop and Exhibition is a biennial event organized and sponsored by the Israeli Association for Automatic Control (IAAC) to serve the wide audience of people in Israel interested in the navigation science and art. The one-day workshop is dedicated to technical talks that range from fundamental research, to applications, to field test results. The exhibition is a unique opportunity to bring together in one location the different industries and representatives offering navigation related hardware.

The Itzhack Bar-Itzhack Invited Speaker will be Dr. Frank van Diggelen, Distinguished Engineer at Google, where he works on high accuracy GNSS for phones, watches, and cars. He also teaches GPS: he and the late Prof. Per Enge created an on-line GPS course, offered through Stanford University and Coursera and available on YouTube. Dr. van Diggelen is also the acting president of the Institute of Navigation (ION).

During the workshop, we will hear talks on some of the hottest topics in navigation, including visual based navigation, GPS / GNSS receivers, and on new advances in sensor fabrication. Overall, the workshop offers a balanced and heterogeneous program with a nice mix of academic and industry speakers bringing us both theoretical and down-to-earth updates. As in previous editions, the event includes an exhibit in which the participants will have the chance to get to know the latest navigation products presented by manufacturers and their local agents.

Besides the technical objectives, the Workshop and Exhibition will provide a great opportunity for networking among all the participants that range from students pursuing an academic degree, researchers and users in Academy and Industry, and policy makers in this highly dynamic field.

We are looking forward to a very successful event.

**Héctor Rotstein** (RAFAEL)  Workshop Organizers
**Vadim Indelman** (Technion)
**Itzik Klein** (U Haifa)

# Program                                        תכנית

| Time | |
|---|---|
| 08:30–09:00 | Registration and visit to the Exhibition |
| 09:00–09:15 | Opening |
| 09:15–10:15 | Itzhack Y. Bar-Itzhack Invited Talk<br>*Raw GNSS Measurements from Phones: Research, Apps and Tools from Google*<br>Frank van Diggelen (Google) |
| 10:15–10:35 | *Incorporating Compositions in Qualitative Approaches*<br>Itai Zilberman and Vadim Indelman (Technion) |
| 10:35–10:55 | *Data-Driven Based Navigation*<br>Itzik Klein (U Haifa) |
| 10:55–11:40 | Coffee / tea break and visit to the Exhibition |
| 11:40–12:00 | *Attitude Estimation of AUVs Based on a Network of Pressure Sensors*<br>Alon Baruch (BGU) |
| 12:00–12:20 | *Inertial Sensor Technology Trends: Recent Advances and Future Perspectives*<br>Ohad Zohar (RAFAEL) |
| 12:20–12:40 | *Inertial Goes Photonics: a New Gyro Technology*<br>Itzik Engel (Cielo Inertial Solutions Ltd.) |
| 12:40–13:00 | *Airborne Terrestrial Robots Control Using Visual Navigation*<br>Oleg Kupervasser (Ariel U) |
| 13:00–14:50 | Lunch break and visit to the Exhibition |
| 14:50–15:10 | *A Robust Single Axis Si-MEMS Gyroscope*<br>D. Grolle, A. Jäckle, S. König, U. Löffelmann, S. Meier-Meybrunn, M. Mogel, J. Pfeiffer, S. Rombach, M. Ruf, P. Zeller, and M. Zinkstein (Northrop Grumman LITEF GmbH) |
| 15:10–15:30 | *Robustnav—A Holistic Approach To Resilient Navigation For Enabling UAV BVLOS Operations*<br>Omer Sharar and Thandava Edara (InfiniDome and Honeywell) |
| 15:30–15:50 | *Compact Quartz MEMS IMU: From Tactical to Short-Term Navigation Grade*<br>Sergey Zotov and David Hoyh (EMCORE Corporation) |
| 15:50–16:50 | Coffee / tea break and visit to the Exhibition |