Abstracts.

AWRC F20

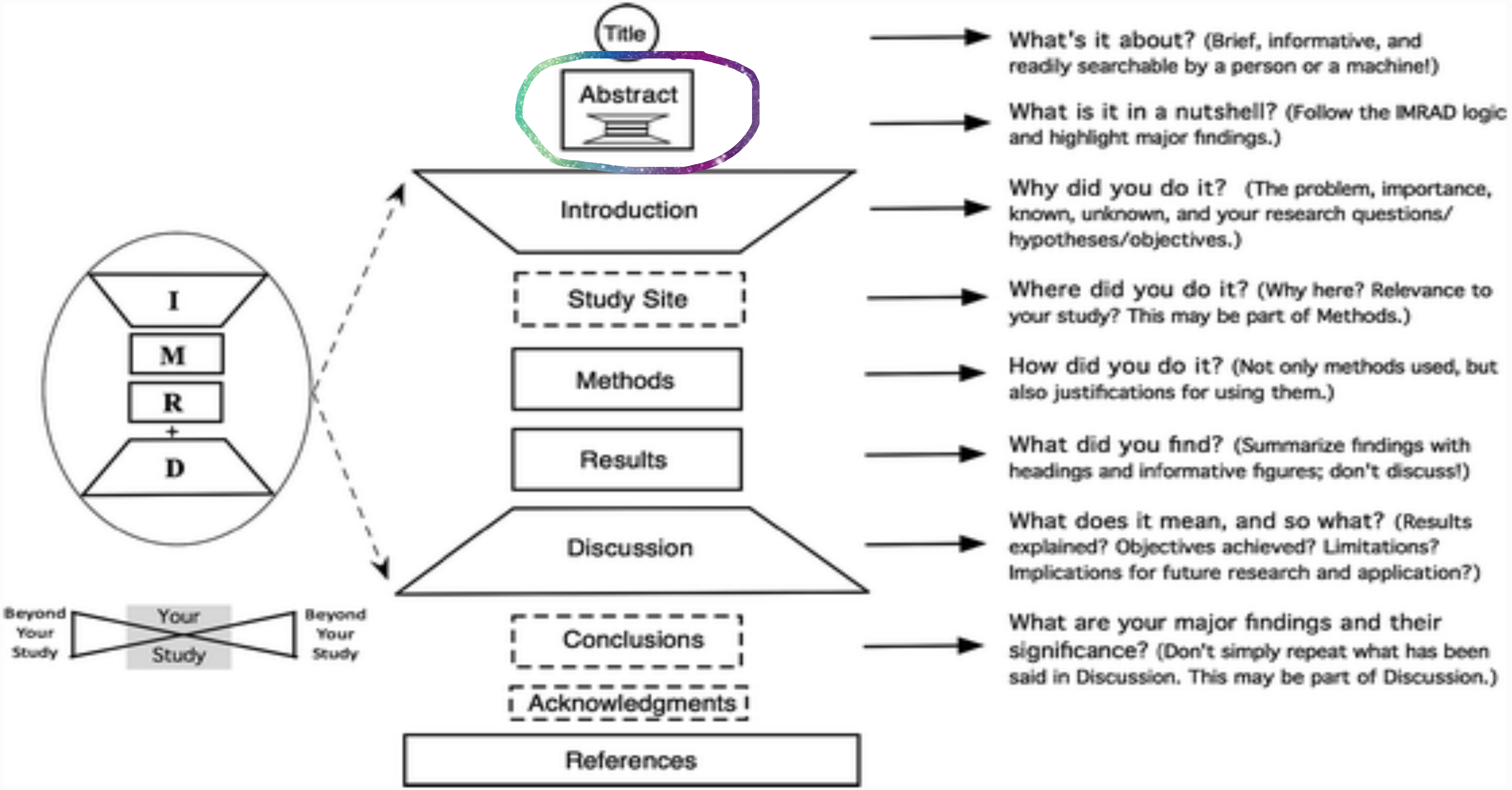
Agenda:

1. Abstracts' role

2. Three types of abstracts:
   - Informative/conventional
   - Graphical
   - Extended/structured abstract

.. their structural components and their sequencing.

3. Key words



Wu, J. Improving the writing of research papers: IMRAD and beyond. Landscape Ecol 26, 1345–1349 (2011). https://doi.org/10.1007/s10980-011-9674-3

a. Structured/ Extended?

a. Informative?

b. Graphical?

The tracking and compensation of patient motion during a magnetic resonance imaging (MRI) acquisition is an unsolved problem. For brain MRI, a promising approach recently suggested is to track the patient using an in-bore camera and a checkerboard marker attached to the patient's forehead. However, the possible tracking range of the head pose is limited by the fact that the locally attached marker must be entirely visible inside the camera's narrow field of view (FOV). To overcome this shortcoming, we developed a novel self-encoded marker where each feature on the pattern is augmented with a 2-D barcode. Hence, the marker can be tracked even if it is not completely visible in the camera image. Furthermore, it offers considerable advantages over the checkerboard marker in terms of processing speed, since it makes the correspondence search of feature points and marker-model coordinates, which are required for the pose estimation, redundant. The motion correction with the novel self-encoded marker recovered a rotation of 18° around the principal axis of the cylindrical phantom in-between two scans. After rigid registration of the resulting volumes, we measured a maximal error of 0.39 mm and 0.15° in translation and rotation, respectively. In in vivo experiments, the motion compensated images in scans with large motion during data acquisition indicate a correlation of 0.982 compared to a corresponding motion-free reference.

Christoph Forman, Murat Aksoy, Joachim Hornegger, Roland Bammer, Self-encoded marker for optical prospective head motion correction in MRI, Medical Image Analysis, Volume 15, Issue 5, 2011, https://www.sciencedirect.com/science/article/abs/pii/S1361841511000867

a. Structured/ Extended?

a. Informative?

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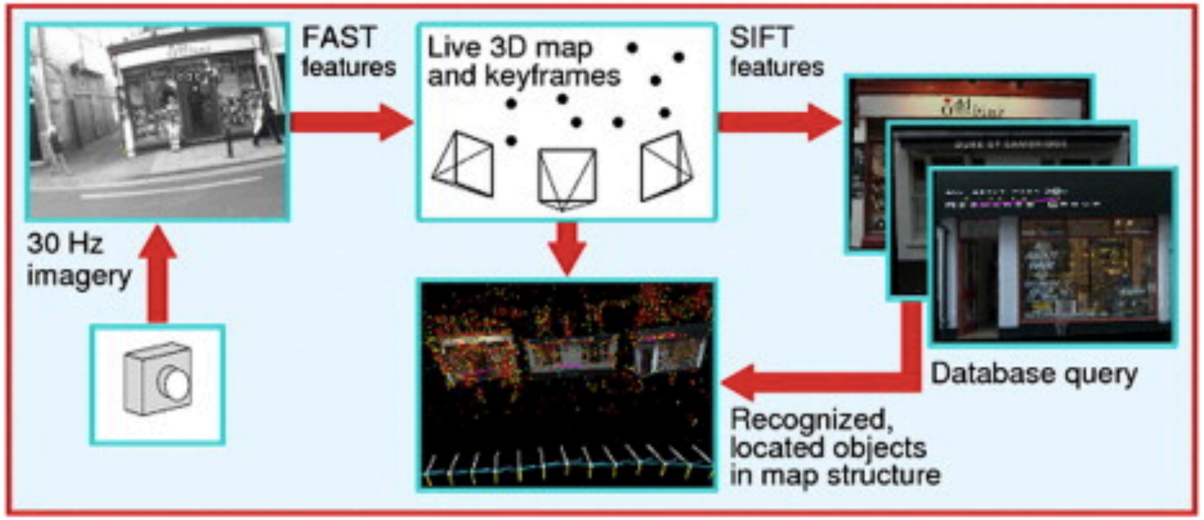

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Research highlights

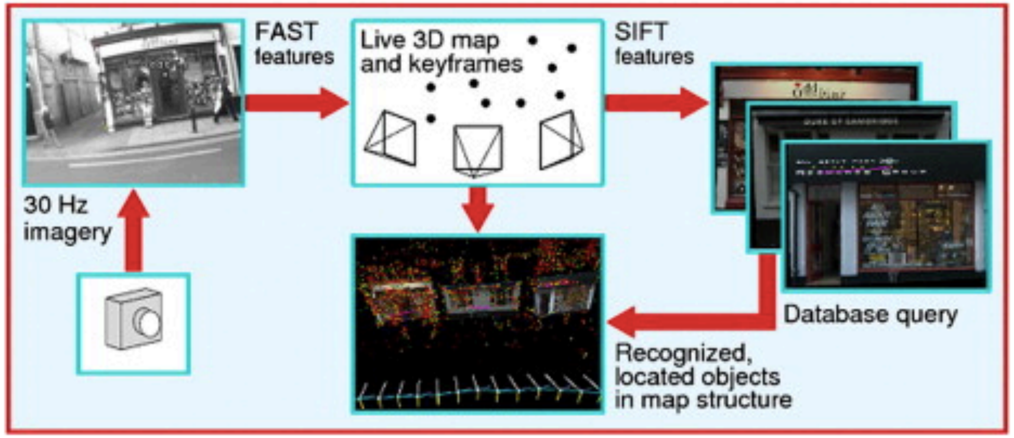
▸ Camera pose tracked at frame rate using FAST features. ▸ Live bundle adjustment optimizes 3D map and keyframe camera poses. ▸ SIFT features computed in keyframes and objects recognized. ▸ Features on recognized objects matched between keyframes, and structure of objects recovered by triangulation. ▸ Method demonstrated in augmented reality scenarios.

R.O. Castle, D.W. Murray, Keyframe-based recognition and localization during video-rate parallel tracking and mapping, Image and Vision Computing, Volume 29, Issue 8, 2011, https://www.sciencedirect.com/science/article/abs/pii/S0262885611000436?via%3Dihub

Abstract

Generating situational awareness by augmenting live imagery with collocated scene information has applications from game-playing to military command and control. We propose a method of object recognition, reconstruction, and localization using triangulation of SIFT features from keyframe camera poses in a 3D map. The map and keyframe poses themselves are recovered at video-rate by bundle adjustment of FAST image features in the parallel tracking and mapping algorithm. Detected objects are automatically labeled on the user's display using predefined annotations. Experimental results are given for laboratory scenes, and in more realistic applications.

Graphical abstract



R.O. Castle, D.W. Murray, Keyframe-based recognition and localization during video-rate parallel tracking and mapping, Image and Vision Computing, Volume 29, Issue 8, 2011, https://www.sciencedirect.com/science/article/abs/pii/S0262885611000436?via%3Dihub

a. Structured/extended?

b. Informative?

c. Graphical?

ABSTRACT

Background and Context: The relationship between novices' first programming language and their future achievement has drawn increasing interest owing to recent efforts to expand K–12 computing education. This article contributes to this topic by analyzing data from a retrospective study of more than 10,000 undergraduates enrolled in introductory computer science courses at 118 U.S. institutions of higher education.

Objective: We explored the relationship between students' first programming languages and both their final grades in an introductory computer science course and their attitudes about programming.

Method: Multiple matching techniques compared those whose first language was graphical (e.g., Scratch), textual (e.g., Java), or absent prior to college.

Findings: Having any prior programming experience had positive effects on both attitudes about programming and grades in introductory computer science courses. Importantly, students whose first language was graphical had higher grades than did students whose first language was textual, when the languages were introduced in or before early adolescent years.

Implications: Learning any computer language is better than learning none. If programming is to be taught to students before early adolescence, it is advised to start with a graphical language. Future work should investigate the transition between different types of programming languages.

KEYWORDS: Programming and programming languages, first programming language, pedagogical issues, secondary education, teaching and learning strategies, postsecondary education

Chen Chen, Paulina Haduong, Karen Brennan, Gerhard Sonnert & Philip Sadler (2019) The effects of first programming language on college students' computing attitude and achievement: a comparison of graphical and textual languages, Computer Science Education, 29:1, 23-48, DOI: 10.1080/08993408.2018.1547564

True or False?

1. An abstract always consists of exactly one paragraph.
2. Abstract should not discuss any information that has not been covered in the paper.
3. The informative abstract repeats the paper structure.
4. The structured abstract repeats the paper structure.
5. The graphical abstract repeats the paper structure.
6. A good abstract makes sense on its own, without need to read the article.
7. Abstracts should include references.
8. Do include tables or diagrams in abstract.
9. You may never use more than 250 words.

Practice.

1. Informative abstract writing.

a. Take the six sentences you wrote as topic sentence of your Introduction chapter (Task 2b, Introduction lesson handout). Write an informative abstract of 200 words based on these six sentences. Remember to paraphrase the original sentences.

b. Add five key words (phrases) to your abstract.

c. Evaluate the abstract and key words of one of your groupmates – will you be likely to read the full paper and why? Highlight strengths. Suggest improvements.

2. Structured abstract writing.

a. Rewrite the informative abstract you have just written as a structured/extended abstract of about 250 words. For each section of the abstract, provide a brief description (about 2-3 sentences) that addresses the prompt.
b. Evaluate the abstract of one of your groupmates. As a reviewer, will you be likely to accept or reject the paper? Explain why. Highlight strengths. Suggest improvements.

Background: Describe the problem space you are working in and why the problem you are addressing is relevant and important for the community.

Objective: Plainly state what you are trying to achieve or find out. For an empirical study, this may be formulated somewhat like a hypothesis.

Method: Introduce the study design and methods you used for this work. For empirical studies, readers should have a good idea of the particular data collection and analysis techniques to be applied in the article. Use specific names for the methods you employ and avoid general descriptors like “statistical” or “qualitative”.

Results: Briefly state what you accomplished or found, especially as it pertains to the objective stated earlier.

Implications: Identify 1–2 implications or contributions of this work for the research community within and/or beyond your specific study context. What do your findings above have to say about work in this field?

Based on: Compute Science Education , Instruction for Authors. Online: https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=ncse20#prep

Summary:

1. Three types of abstracts:
    - Informative/conventional
    - Graphical
    - Extended/structured abstract

2. Key words

3. Final graded assignment – due December 16th 9 am MSK
https://moodle.innopolis.university/mod/turnitintooltwo/view.php?id=46112