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Eszter Lukács

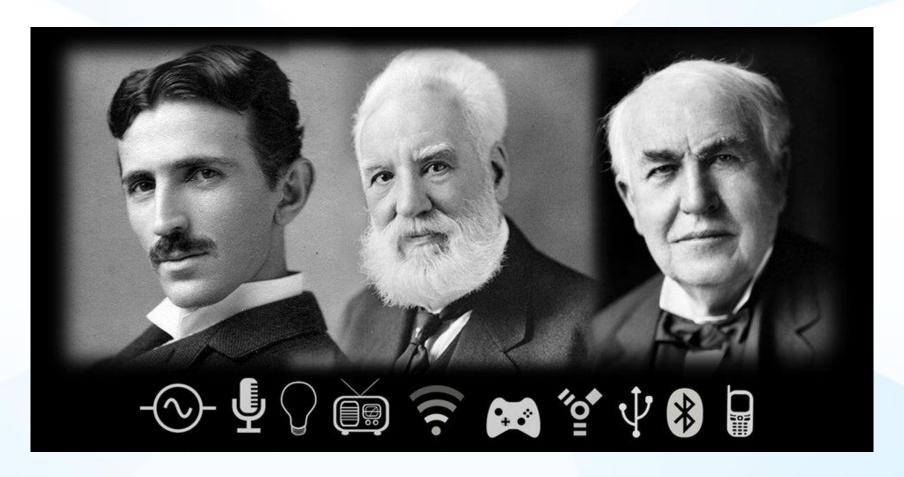
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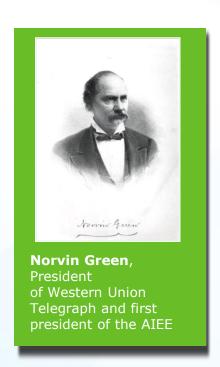
1884: Where we came from

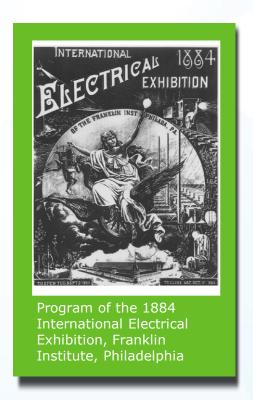


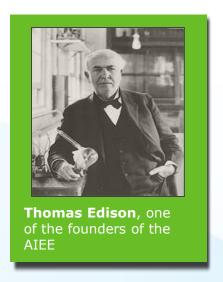


1884: The American Institute of Electrical Engineers is founded

A small group of individuals met in New York and founded the AIEE to advance the new field and represent the US at the 1884 International Electrical Exhibition in Philadelphia.









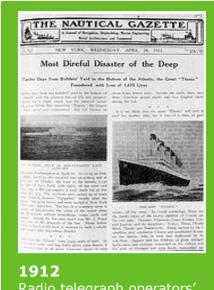
1912: The Institute of Radio Engineers is founded

Radio, a new electrical technology, arose in the first decade of the twentieth century. With the new industry came a new society, IRE, modeled on the AIEE, but devoted to radio, and later increasingly to electronics.





1901
Guglielmo Marconi and
George Kemp with
equipment used in
transatlantic wireless
telegraphy



Radio telegraph operators' communications with the sinking Titanic demonstrated the power of radio



1922
Triode vacuum tube
inventor Lee de Forest
with a radio



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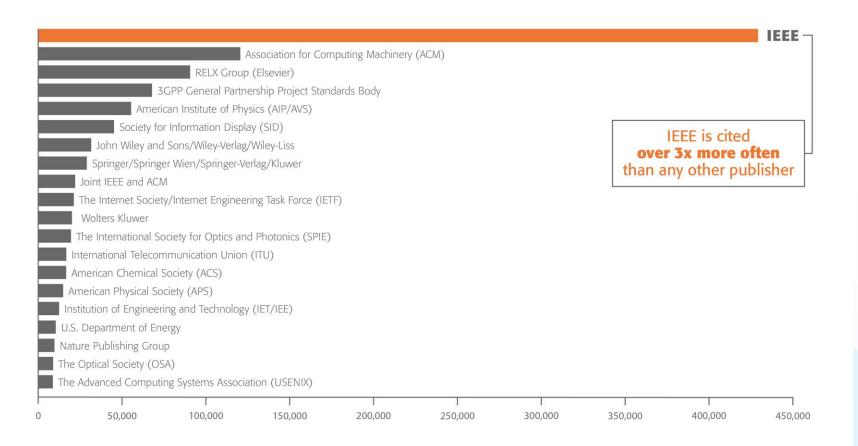


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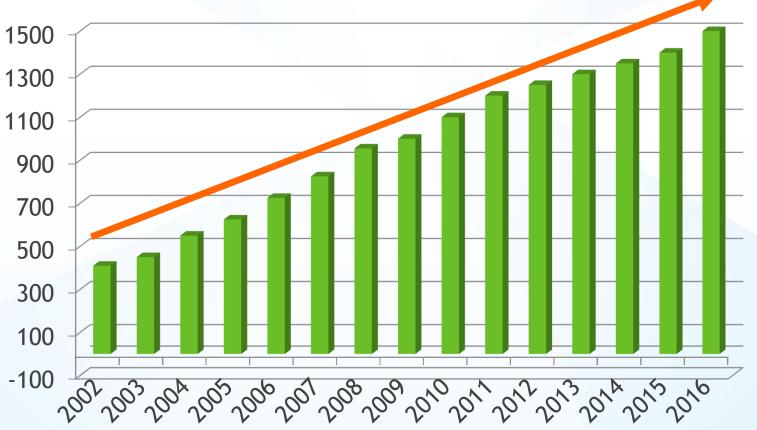
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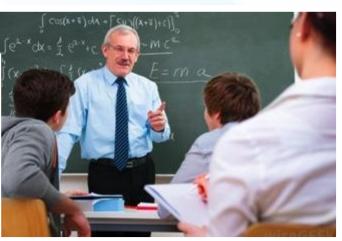
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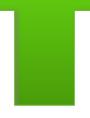
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- Special Issue on Manipulation, Manufacturing and Measurement on the Nanoscale









Aims & Scope

The theory, design and application of Control Systems. It shall encompass components, and the integration of these components, as are necessary for the construction of such systems. The word 'systems' as used herein shall be interpreted to include physical, biological, organizational and other entities and combinations thereof, which can be represented through a mathematical symbolism. The Field of Interest: shall include scientific, technical, industrial or other activities that contribute to this field, or utilize the techniques or products of this field, subject, as the art develops, to additions, subtractions, or other modifications directed or approved by the IEEE Technical Activities Board.

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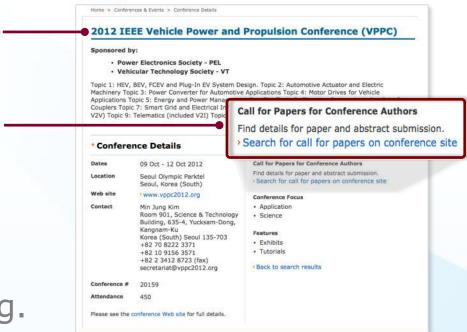


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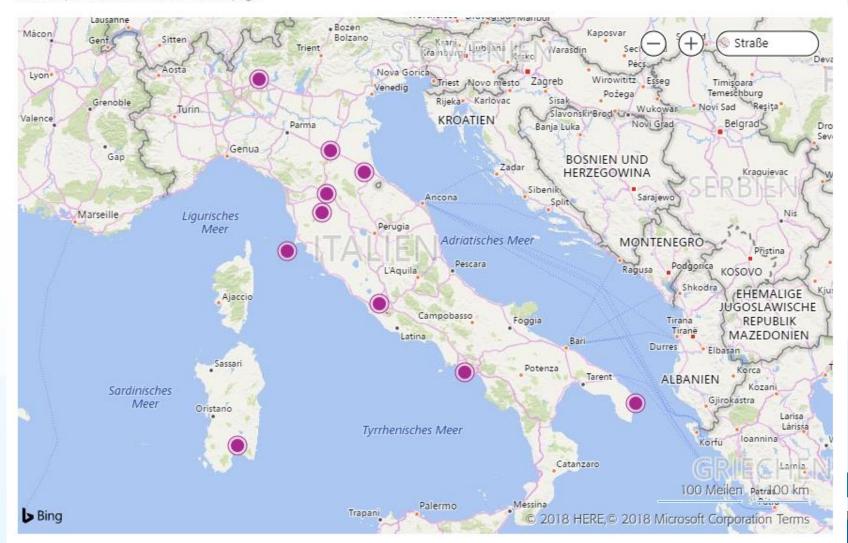


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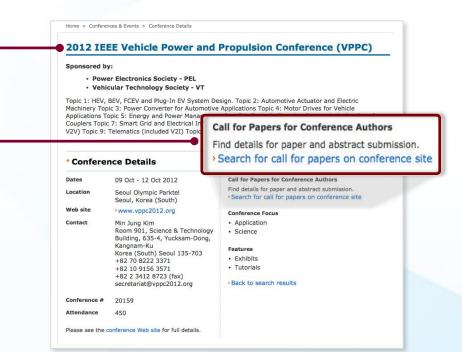


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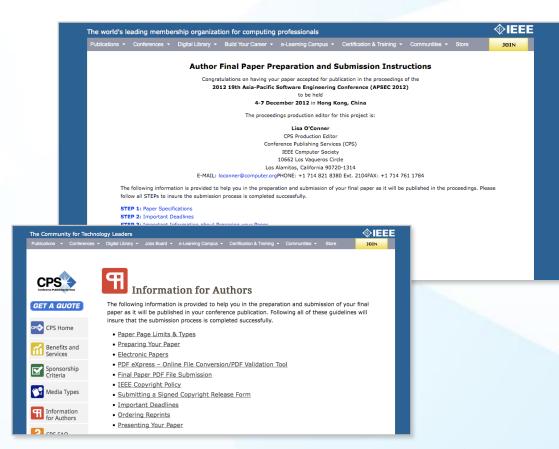




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Structure



Paper Structure

Elements of a manuscript

Title

Abstract

Keywords

Introduction

Methodology

Results/Discussions/Findings

Conclusion

References





Paper Structure Title

An effective title should...

- •Answer the reader's question: "Is this article relevant to me?"
- •Grab the reader's attention
- •Describe the content of a paper using the fewest possible words
 - Is crisp, concise
 - Uses keywords
 - Avoids jargon





Paper Structure

Good vs. Bad Title

A Human Expert-based Approach to Electrical Peak Demand Management

VS

A better approach of managing environmental and energy sustainability via a study of different methods of electric load forecasting



Paper Structure Abstract

Why you did A "stand alone" condensed version of the article No more than 250 words; What you did written in the past tense Uses keywords How the results and index terms were useful, important & move the field forward Why they're useful & important & move the field forward



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Paper Structure

Good vs. Bad Abstract

The objective of this paper was to propose a human expert-based approach to electrical peak demand management. The proposed approach helped to allocate demand curtailments (MW) among distribution substations (DS) or feeders in an electric utility service area based on requirements of the central load dispatch center. Demand curtailment allocation was quantified taking into account demand response (DR) potential and load curtailment priority of each DS, which can be determined using DS loading level, capacity of each DS, customer types (residential/commercial) and load categories (deployable, interruptible or critical). Analytic Hierarchy Process (AHP) was used to model a complex decision-making process according to both expert inputs and objective parameters. Simulation case studies were conducted to demonstrate how the proposed approach can be implemented to perform DR using real-world data from an electric utility. Simulation results demonstrated that the proposed approach is capable of achieving realistic demand curtailment allocations among different DSs to meet the peak load reduction requirements at the utility level.

Vs

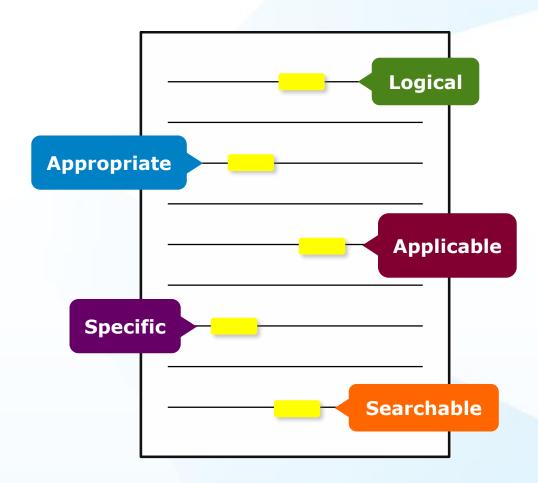
This paper presents and assesses a framework for an engineering capstone design program. We explain how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. Next, we describe a way to administer and execute the capstone design experience including design workshops and lead engineers. We describe the importance in assessing the capstone design experience and report recent assessment results of our framework. We comment specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

First person, present tense
No actual results, only describes the organization of the paper



Paper Structure Keywords

Use in the Title and Abstract for enhanced Search Engine Optimization





IEEE Keywords

Bit rate, Decoding, Encoding, Parallel processing, Video coding

Authors Keywords

High Efficiency Video Coding (HEVC), parallel programming, video coding

INSPEC: Controlled Indexing

parallel processing, video coding

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12-core system, H.264-advanced video coding, HEVC parallelization approaches, OWF, WPP, frequency 3.33 GHz, high efficiency video coding, overlapped wavefront, parallel efficiency, parallel friendliness, parallel scalability, parallelization proposals, tiles, wavefront parallel processing



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Paper Structure Introduction

- A description of the problem you researched
- It should move step by step through, should be written in present tense:

Generally known information about the topic

Prior studies'
historical
context to your
research

Your hypothesis and an overview of the results

How the article is organized

- The introduction should <u>not be</u>
 - Too broad or vague
 - More then 2 pages

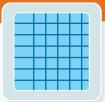


Paper Structure Methodology

- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis
- Use illustrations to clarify ideas, support conclusions:

Tables

Present representative data or when exact values are important to show



Figures

Quickly show ideas/conclusions that would require detailed explanations



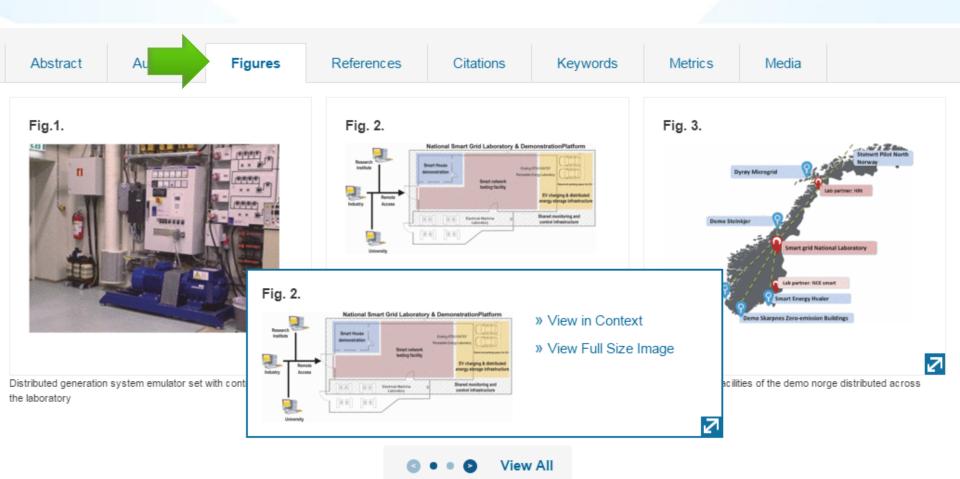
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Show relationships between data points or trends in data





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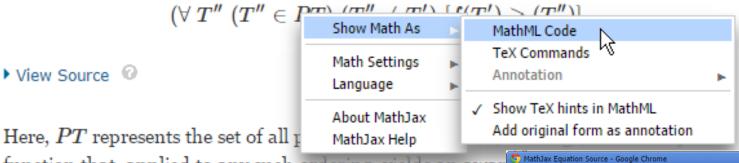


Equations: Copy Source Code

The Test Case Prioritization Problem.

Given: T, a test suite; PT, the set of permutations of T; f, a function from PT to the real numbers.

Problem: Find $T' \in PT$ such that



function that, applied to any such ordering, yields an awar

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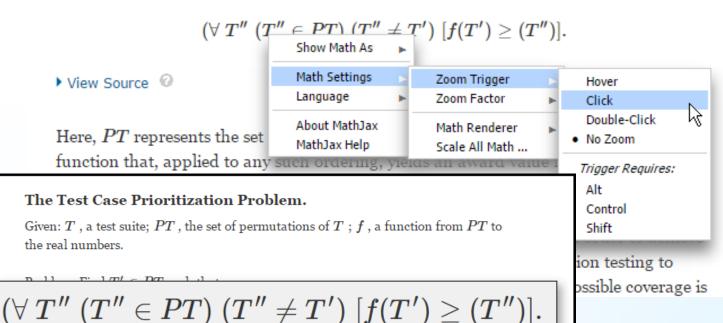
Equations: Zoom Function

The Test Case Prioritization Problem.

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Here, PT represents the set of all possible prioritizations (orderings) of T and f is a function that, applied to any such ordering, yields an award value for that ordering.

Paper Structure Results/discussion

Demonstrate that you solved the problem or made significant advances

Results: Summarized Data

- Should be clear and concise
- Use figures or tables with narrative to illustrate findings

Discussion: Interprets the Results

- Why your research offers a new solution
- Acknowledge any limitations

the SC algorithm over the whole range of w values increase to 3-4 K, except for the TIGR: to database, with an RMSE of 2 K. This last result is explained by the w distribution, which is biased toward low values of w in this database. When only atmospheric profiles with to values lower than S g - cm - 2 are selected, the SC algorithm provides RMS around 1.5 K, with almost equal values of bias and standard deviation, around 1 K in both cases (with a negative bias, thus the SC underestimates the LST). In contrast, when only we values higher than 3 g - cm⁻² are considered, the SC algorithm. provides RMSEs higher than 5 K. In these cases, it is preferable to calculate the atmospheric functions of the SC algorithm directly from (3) rather than approximating them by a polynomial fit approach as given by (4).

V. DISCUSSION AND CONCLUSION The two Landsat-S TIR bands allow the intercomparison

of two LST retrieval methods based on different physical such as the SC (only one TIR band required) fams (two TIR bands required). Direct inversion e transfer equation, which can be considered orithm, is assumed to be a "ground-truth" **Discussion** and L_d) is accurate enough. The SC algoin this letter is a continuation of the previous SC veloped for Landsat-4 and Landsat-5 TM sensors, ne ETM+ sensor on board the Landsat-7 platform [9], and it could be used to generate consistent LST products from the historical Landsat data using a single algorithm. An advantage of the SC algorithm is that, apart from surface emissivity, only water vapor content is required as input. However, it is expected that errors on LST become unacceptable for high water upper contents (e.g., > 3 g \cdot cm⁻²). This problem can be purify solved by computing the atmospheric functions directly from τ , L_{∞} , and $L_{\mathcal{L}}$ values [see (5)], or also by including air temperature as input [15]. A main advantage of the SW algorithm is that it performs well over global conditions and, thus, a wide range of water vapor values; and that it only requires water vapor as input (apart from surface emissivity at the two TIR bands). However, the SW algorithm can be only applied to the new Landant-S TIRS data, since previous TM/ETM sensors only had one TIR band.

The LST algorithms presented in this letter were tested with simulated data sets obtained for a variety of global atmospheric conditions and surface emissivities. The results showed RMSE values of typically less than 1.5 K, although for the SC algorithm, this accuracy is only achieved for w values below 9 g - cm⁻². Algorithm teeting also showed that the SW errors are lower than the SC errors for increasing water vapor, and vice versa, as demonstrated in the simulation study presented in Sobrino and Jiménez-Muñoz [18]. Although an extensive validation exercise from in sits measurements is required to assess the performance of the two LST algorithms, the results obtained for the simulated data, the sensitivity analysis, as well as the previous findings for algorithms with the same mothemotical structure give confidence in the algorithm accuracies

Results

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We then have

$$(P_t^{a,+} + P_t^{a,-})^2 - (P_t^{a,+} - P_t^{a,-})^2 + 4P_t^{a,+}P_t^{a,-}$$

 $< (\hat{P}_t^{a,+} - \hat{P}_t^{a,-})^2 + 4\hat{P}_t^{a,+}\hat{P}_t^{a,-}$
 $- (\hat{P}_t^{a,+} + \hat{P}_t^{a,-})^2.$ (32)

Since $P_i^{k,+} - P_i^{k,-} = P_i^{k,+} - P_i^{k,-}$, we then have $P_i^{k,+} < P_i^{k,+}$, and $P_i^{k,-} < P_i^{k,-}$. Because the operational cost is an increasing function of $(P_i^{k,+}, P_i^{k,-})$, we obtain that

$$c_{v/m}(P_t^{s,+}, P_t^{s,-}) < c_{v/m}(\hat{P}_t^{s,+}, \hat{P}_t^{s,-}).$$
 (33)

Therefore the optimal pair $\{P_i^{h,+}, P_i^{h,-}\}$ must satisfy that $P_i^{h,+}P_i^{h,-}=0$, i.e., only one of $P_i^{h,+}, P_i^{h,-}$ can be non-zero.

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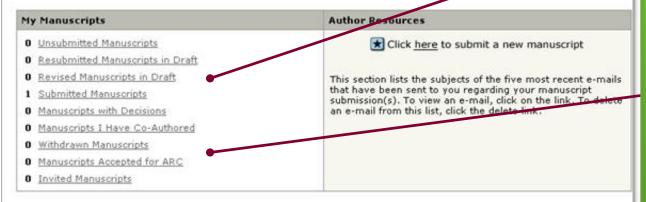
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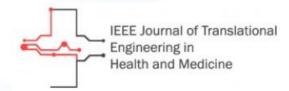


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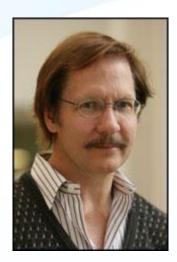


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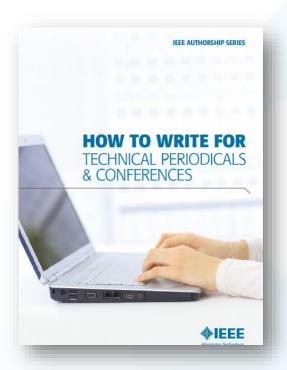
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