

Publishing SE articles

in peer-reviewed venues

Dr. Hakan Erdogmus

Editor in Chief, **IEEE Software**



Software

SE literature

Common SE topics

- Requirements
- Design/Architecture
- SD technology, tools & frameworks
- Programming technology
- SD methodologies, practices, & techniques
- Software process improvement
- Software economics
- Software quality
- Software metrics
- Software testing
- SD productivity
- Maturity frameworks
- Software project management
- Human aspects of SD
- *SE education*
- *Software specification*
- *Software V&V*

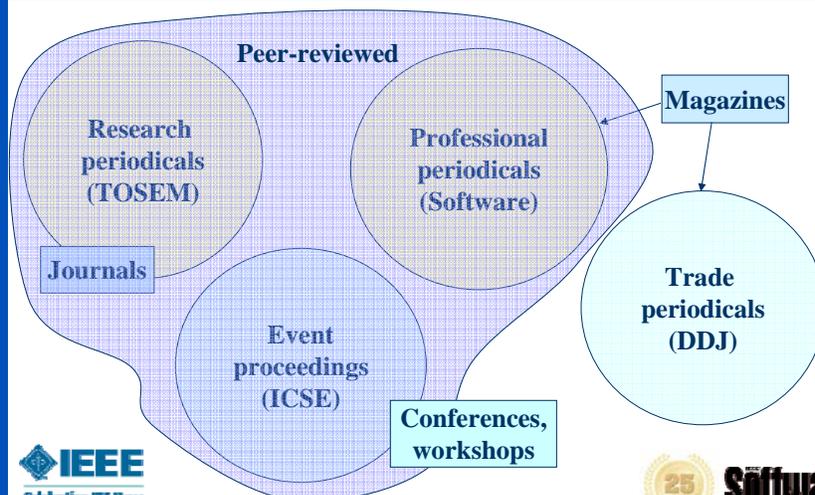


Non-SE literature

Common topics not ordinarily covered in SE lit

- *Almost never*
 - Data structures
 - Algorithms
 - Complexity theory
 - Operating systems
 - Databases
 - Networks
- *Not generally*
 - Social computing
 - HCI
 - Project management
 - Online collaboration
 - Web engineering
 - IS
 - End-user SD
 - Security & Privacy

SE publication landscape



Research periodicals (journals)

Target scientific community (researchers, academics)
- *narrow exposure*

- Offered by publishing houses, professional organizations, non-profit communities
- Archival
- Scholarly style
- Formal treatment
- Scientific contribution, rigor valued
- Longer articles
- Not professionally copy-edited or laid out
- Command high academic standing

- TSE
- TOSEM
- IST
- EMSE
- SQJ
- SP-IP
- JSS
- IBM-SJ
- SP&E
- RE
- STV&R
- IEE-PSw
- JASE
- SEN
- ...



5



Professional periodicals

Target scientific community, professionals, educators -
broad exposure

- Published by professional organizations (IEEE, ACM)
- Archived (& indexed)
- Casual style
- Pragmatic treatment
- Relevance, timeliness, applicability valued
- Shorter articles
- Professionally copy-edited and laid out
- Rich editorial content: columns, letters, news, reviews, etc.
- Command academic standing, but in general considered inferior to top research periodicals in scholarly value

SE specific:
• **Software**

Has SE content:
IEEE
• **Computer**
• S&P
• IC
• ITPro
• Spectrum
ACM
• **Queue**
• **CACM**



6



Trade magazines

Target practitioners, general public (both amateurs and professionals) - *broad exposure*

- Not always archived & indexed
- Casual style
- Pragmatic treatment
- Very timely, "hot off the press"
- Appeal, catchiness valued
- Shorter articles
- Anecdotal content: "how-to" & opinion pieces
- Professionally copy-edited and laid out
- Richest editorial content
- Does not command much academic standing
- *Focused on online delivery*

- Dr Dobb's J
- Better Software



7



Online publication & pre-publication

- *Online publication*: a delivery mechanism:
 - digital-only
 - print with digital
- *Pre-publication*: a temporary, early dissemination method until print version is available
 - *Will be available for IEEE Software in 2009*



8



5 overlooked factors for choosing a publication venue

- **Audience:** match to venue's type
- **Topic:** match to venue's coverage areas
- **Value of work** (scientific, technical, practical): match to venue's ranking
- **Status of work:** which stage? early, mature?
- **Composition of editorial board or program committee:** do you know their work?

Write to editors or PC if unsure...

Top-tier venues

Relatively

- High citation metrics
- High visibility
- Low acceptance rates

So.. what does it take to get in?

Top 10 ways to kill a paper



Number Ten

Ignore reviewer feedback

Number Nine

Stick to clichés

13



Number Eight

Borrow without due credit

14



Number 7

Don't worry about the language

15



Number Six

Ignore limitations

16



Number Five

Ignore context & prior art

17



Number Four

Rely on argumentation to
push an idea

18



Number Three

Ignore your audience

19



Number Two

Be undeservedly
authoritative

20



Number One

Write in a purely descriptive style

21



Top 10 ways to kill a paper

1. Write in a purely descriptive style
2. Be undeservedly authoritative
3. Ignore your audience
4. Rely on argumentation to push an idea
5. Ignore context and prior art
6. Ignore limitations
7. Don't worry about the language
8. Borrow without due credit
9. Stick to clichés
10. Ignore reviewer feedback

22



Validation, validation, validation

It's getting increasingly difficult to publish work without some kind of validation

Demonstrate value of work...

- Empirically - *controlled experiment, real-life case study, ...*
- Experientially - *collection of convincing anecdotes from own experience, repeated use in non-trivial contexts*
- Theoretically - *simulation, proof...*
- Hearsay - *based on supporting evidence from literature*

23



Multiple concurrent submissions

- Jeopardize viability of peer-review process
- Are against IEEE and ACM policies
- May result in sanctions, disciplinary action
- May ruin your reputation

24



Periodical citation metrics

Impact Factor: Average number of citations of articles over a two-year period divided by the number of articles published in the periodical in the same period.

Citation Half-Life: The number of years going back from the current year which account for 50% of the total citation received by the periodical during the current year.

Immediacy Index: Average number of times that an article, published in a specific year, is cited over the course of the same year.

Available from Thomson Reuters ISI Web of Knowledge
<http://isiknowledge.com/jcr>



25



Pitfalls of citation metrics

- Absoluteness
 - IF: Nature 28.75 vs. TOSEM 2.79
- Non-comprehensive
 - E.g., JASE excluded



26



Alternative citation metrics

- Eigenfactor metrics
 - Article Influence Score: "a measure of a journal's prestige based on per article citations and comparable to IF"
 - Eigenfactor Score: "a measure of the overall value provided by all of the articles published in a given periodical in a year"
 - *Less absolute, account for interactions among fields*



www.eigenfactor.org



27

Comparative citation metrics ('07)

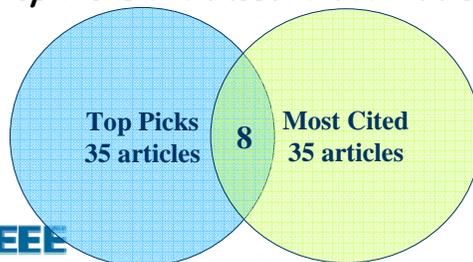
	IF (r)	AI (r)
<i>Software</i>	1.462 (4)	0.691 (5)
<i>Dr. Dobbs</i>	0.048 (7)	0.148 (7)
<i>JSS</i>	0.799 (6)	0.369 (6)
<i>TSE</i>	2.105 (2)	1.024 (2)
<i>Computer</i>	1.367 (5)	0.949 (3)
<i>CACM</i>	1.593 (3)	0.840 (4)
<i>TOSEM</i>	2.792 (1)	1.077 (1)



28

Citation stats & popularity

- A publication's prestige is based on individual articles' citation stats
- But citation stats are not everything
- Overlap between IEEE Software's 25th-anniversary *Top Picks* and *Most-Cited Articles*.



See: IEEE Software
Jan/Feb 2009

Writing for a professional periodical

McConnell's 7 desired attributes for technical articles

- Focus
- Clarity
- Accessibility
- Objectivity
- Humility
- Quick progression
- Brevity

Professional periodicals: what reviewers are looking for

- Relevance to practitioners
- Technical soundness
- Organization & focus
- Freedom from superficial arguments
- Context: positioning work in a greater context
- Novelty (for non-synthesis work)

About *IEEE Software*

- Differentiation
- Target audience
- Desirables & undesirables
- Coverage Areas
- Composition
- Statistics

IEEE Software - Differentiation

- Bridging
 - research and practice
 - theory and application
- Broad topic coverage
- Multi-level appeal
 - Programming → Process
 - Technical → Managerial



33



IEEE Software - Target Audience

- **Reflective practitioner**
 - anybody participating in software development in any role (developers, process experts, architects, designers, testers, quality experts, usability experts, project and program managers, executives...)
 - from *small* to *large* to organizations
 - who has a desire to be on the leading edge, question status quo
- **Grounded researcher & educator**
 - who cares about the reflective practitioner



34



IEEE Software - Desirables

- Practical advice
- Clear take-away message
- Information value
- Horizon-expanding appeal
- Broad accessibility
- Sophistication (wisdom from other fields)
- Novel, grounded ideas and opinions
- Balance (conviction *moderated by reflection*)



35



IEEE Software - Undesirables

- Sales pitches
- Mainstream advice
- Mere demonstration of hard work or exemplary science
- Complexity that limits accessibility
- "We did it this way, and it worked well"
- Overly scholarly or formal treatment



36



IEEE Software - Coverage Areas

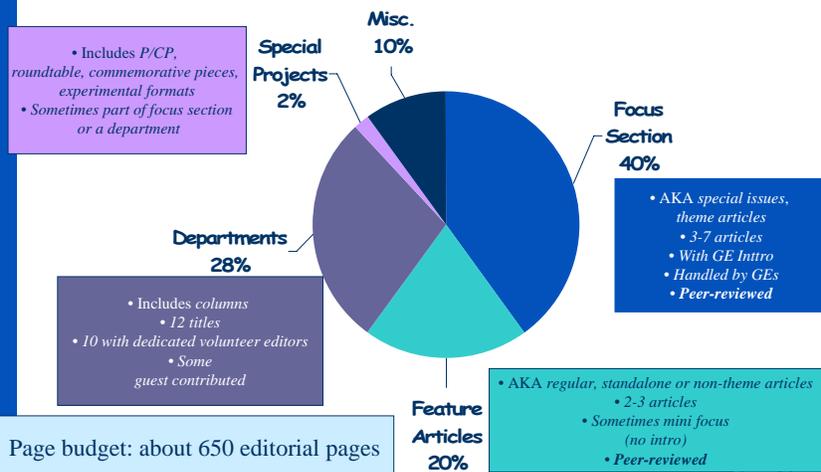
- Design & Architecture
- Management
- Quality
- Requirements
- Processes & Practices
- Empirical Results
- Development Infrastructure
- Distributed & Enterprise Software
- Human and Social Aspects
- Programming Languages & Paradigms
- *Education, Training, Professional Development*



37



IEEE Software - Composition



38

of Engineering the Future



IEEE Software - Stats (averages)

Total submissions: 225 per year

Acceptance rates

- All articles: 22%

Timeliness

- Submission to 1st decision: 1.7 mo.
- Submission to final decision: 2.6 mo.



39

