

PEMANFAATAN OSINT UNTUK IDENTIFIKASI DAN MITIGASI ANCAMAN KEJAHATAN CYBER DI LINGKUNGAN MEDIA DARING

Oleh:

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Pendahuluan

- Latar Belakang
 - Lonjakan kejahatan siber di media daring mengancam individu dan organisasi.
 - Perlunya strategi efektif untuk identifikasi dan mitigasi ancaman.
- Tujuan
 - Mengembangkan alat berbasis OSINT untuk analisis jejak digital menggunakan Python, NER (spaCy), dan regex.
 - Visualisasi data interaktif untuk mendukung investigasi keamanan siber.

Pertanyaan Penelitian (Rumusan Masalah)

1. Bagaimana OSINT dapat mengidentifikasi ancaman kejahatan siber di media daring?
2. Bagaimana efektivitas alat berbasis Python dalam ekstraksi metadata dan visualisasi data?
3. Apa langkah mitigasi yang tepat berdasarkan hasil identifikasi kebocoran data?

Metode

Pendekatan	Pengembangan Alat	Validasi
OSINT + Footprinting untuk pengumpulan data publik.	Bahasa: Python (library: requests, BeautifulSoup, pandas, matplotlib).	Pemeriksaan kebocoran data menggunakan Have I Been Pwned (HIBP).
NER (spaCy) dan regex untuk ekstraksi metadata (email, nomor telepon, akun media sosial).	Output: Laporan HTML interaktif (Bootstrap 5).	

Hasil

- Contoh Output Tool
 - Grafik Metadata: Dominasi entitas "ORG" (463 kemunculan) dan "PERSON" (381 kemunculan).
 - Network Graph: Visualisasi hubungan antar-entitas (contoh: Google ↔ Sundar Pichai).
 - Domain Sumber: www.w3.org (44 kemunculan), schema.org (20 kemunculan).
- Deteksi Kebocoran Data
 - 14 email terdeteksi, 4 di antaranya terindikasi bocor via HIBP.

Pembahasan

Keunggulan Tool

- Otomatisasi pengumpulan data dari multi-sumber (Google, Twitter, dll.).
- Akurasi tinggi dalam klasifikasi entitas dengan NER dan regex.

Keterbatasan

- Ketergantungan pada ketersediaan data publik.
- Perlunya pemantauan berkala untuk update model NER.

Temuan Penting Penelitian

1. OSINT + Footprinting efektif untuk pelacakan jejak digital.
2. Alat berbasis Python mampu mengekstrak dan memvisualisasikan metadata secara real-time.
3. Integrasi HIBP memungkinkan mitigasi proaktif terhadap kebocoran data.

Manfaat Penelitian

Akademik dan Praktis

1. Akademik:

- Kontribusi dalam pengembangan tools forensik digital berbasis OSINT.
- Referensi untuk penelitian keamanan siber dan analisis metadata.

2. Praktis:

- Dukung investigasi keamanan siber oleh analis dan lembaga penegak hukum.
- Tingkatkan kesadaran privasi di media daring melalui visualisasi data interaktif.

Jurnalis

- Investigasi Data
 - Bantu melacak sumber informasi publik (misal: akun anonim, kebocoran dokumen).
- Verifikasi Konten
 - Identifikasi pola penyebaran hoaks atau akun bot menggunakan analisis entitas dan jejaring.
- Pelaporan Mendalam
 - Visualisasi network graph memudahkan penyajian hubungan antar-entitas dalam berita.

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